IMPERIAL
DEPARTMENT OF AGRICULTURE
FOR THE WEST INDIES.

IMPERIAL BUREAU OF MYCOLOGY
19 DEC 1925

REPORT

ON THE

AGRICULTURAL DEPARTMENT, ST. VINCENT,

FOR THE YEAR

1924.

TRINIDAD.
ISSUED BY THE IMPERIAL COMMISSIONER OF AGRICULTURE
FOR THE WEST INDIES.

1925.

[Price Sixpence.]

REPORTS

ON THE

BOTANIC STATION, ECONOMIC PLOTS, AND AGRICULTURAL EDUCATION, ST. VINCENT.

Annual Reports on certain Economic Experiments conducted in connexion with the Botanic Station, 1900–2.

Annual Reports on the Botanic Station for the years 1901 and 1902.

Annual Reports on the Botanic Station, Economic Experiments, and Agricultural Education for the years 1902–3 to 1918–24.

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1925.

LETTER OF TRANSMITTAL.

To His Honour the Administrator, St. Vincent.

681

TRINIDAD, 14th September, 1925.

R,

I have the honour to forward the Annual Report of the Agricultural artment, St. Vincent, for the year 1924. It has been prepared by Mr. T. son, the Agricultural Superintendent of the Island, and in it is included a on by Mr. Burd, the representative of the Empire Cotton Growing Corpora-, which embraces those sections of his work which are of practical interest.

2. The Report shows a great deal of energy and covers a large field. On one point would I offer any criticism, it is that perhaps too little use is made he organised supply of cotton seed to work up a wide growth of pure races ughout the Island.

I have the honour to be,

Sir,

Your most obedient servant,

(Sgd.) H. M. LEAKE,
Commissioner of Agriculture
for the West Indies.

1925.)

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Staff of the Agricultural Department, St. Vincent.

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Assistant Agricultural Superintendent	
Government Veterinary Surgeon	
Cotton Inspector and Government Vaccinating Officer ...	L. BROWN.
Foreman, Experiment Station and Agricultural Instructor	F. A. SIMMONS.
Foreman, Botanic Station and Inspector, Cotton Stainer Control	E. BANFIELD.
Officer in Training to May 15	G. M. LOUGHEED.
,, ,, ,, from May 15	H. A. NANTON.
Clerical Assistant	Miss D. E. WALL.

COTTON RESEARCH.

Provided by the Empire Cotton Growing Corporation.

Research Officer	L. H. BURD, B.A.

REPORT ON THE AGRICULTURAL DEPARTMENT, ST. VINCENT.

For the year ended December 31, 1924.

Work in the Botanic Gardens, and Observations on Plants.

No climatological event of significance occurred during 1924. The rainfall ded was slightly below normal, there being 90·49 inches registered. St. nt was particularly fortunate in escaping the storms which did so much ge to other West Indian Islands.

The routine work in the Gardens was well maintained during 1924. Im- ements, although perhaps of a somewhat unobtrusive nature, were carried out, t may not be out of place to record some of these.

A large proportion of the road leading from the Agricultural Superintendent's ters to Government House was remetalled and on this grass was planted. reason for planting such is self-evident. In an island with a high rainfall mount of damage done to road surfaces by erosion is great, and the presence owing grass on such helps considerably to minimise it. A further effort to ve the appearance of this road was made by planting Antigua Heath *selia juncea*) on one side of it. The edge of the lawn should have originally made to slope gently to the level of the road ; this, however, was not done, he above mentioned shrub was planted with the object of hiding the unsightly

The piece of land in front of the Office was cleared and grassed over during year and a Hibiscus hedge planted to the west of it, adjoining the road. ious to clearing, this land had growing on it a collection of Crotons, (*Codiaeum*) n presented a decidedly ragged appearance. They were removed to a more ble position. In addition several large trees were growing on this and as had the effect of masking the beauty of other specimens they were removed. trees were large and the task of cutting them down was no light one. The nt of timber in one alone probably weighed several tons.

Three specimens of Rain trees (*Pithecolobium saman*) growing in front of gricultural Superintendent's Quarters were cut down during the year. These, years ago, had been severely pruned and various climbing plants were ed at their bases with a view to subsequently hiding their nakedness. In stead three specimens of *Sabal. minus. Pers.* (*S. Adansoni. Guerns.*) planted. As these are flanked by other specimens of the same palm, it is l that, in the fullness of time, a handsome avenue will be formed.

In the report on this Department for 1921 a note is made to the effect that urricane experienced that year seriously damaged a large specimen of the on Ball Tree, (*Couroupita guianensis. Aubl.*) the part blown down being than one hundred feet long. The breaking of this made a large wound n became attacked by a wood-rot the ravages of which caused the weakening to such a degree that it could not support branches and foliage ; consequently pped during a period of high winds.

During the year under report preparations were made to construct concrete s on each side of the road leading from the Doric Temple to the Nurseries on one side of the road in front of the office. It may be said that the drain e latter mentioned place was some 2 feet 6 inches deep and 2 feet wide ; the e measurements now are 6 inches by 8 inches.

The Talipot Palm (*Corypha umbraculifera*, L.) mentioned in the 1923 Report ving died, was removed ; this has left rather a nasty gap. At the time of ng another member of this genus, *Corypha Gebanga Blume* is in fruit.

Garcinia Mangostana, L.

This tree was imported into St. Vincent some forty-three years ago, and i the only specimen of its kind growing in the island. It fruited for the first tim in 1907 and has fruited several times since. This fact is put forward to indicat the length of time taken to get a new fruit established in a West Indian island and this is more remarkable when it is remembered that the fruit in questio possesses a flavour of known repute. This tree fruited on a moderately libera scale during 1924. The fruits were sent to leading members of the communit with a view to popularise them. There are now a number of young plants o this in the Nursery ready for distribution.

Pentadesma butyracea, Sabine.

This is the Butter or Tallow Tree of Sierra Leone, of which there is on specimen growing in the St. Vincent Gardens. The tree is some twenty feet high but has not yet fruited. Several parts of it yield a yellow greasy juice ; this i specially pronounced in the fruit, which is ovoid in shape and of a dark brow colour. This material is sold as butter in the markets of Freetown and is use by the natives as a food. It possesses a strong turpentine flavour repugnant t Europeans. It must not be confused with Shea butter which is produced by quit a different tree having the same habitat as the previously mentioned one. She butter is a valuable commercial commodity.

Plant Importations.

Carya olivaeformis, Nutt.

The seeds of the above named tree were received from the United State Department of Agriculture. *Carya olivaeformis* produces the nut that is wel known in the Southern States of America as the Pecan or Peccan. The plant i related to the English Walnut, Juglans, differing from it, however, in variou botanical characters. It is common on the banks of the Mississippi where it a times attains a height of 70 or more feet. It is valued for its fruits which are o a light brown colour, shaped like an olive, and indistinctly marked by four slightl raised longitudinal ridges. The flavour of the nuts, to the writer's mind, canno be detected from that of the Walnut, and may be used for all the purposes tha this is put to. The germination of the seed received was excellent and a numbe of young plants will be ready for planting during the next few months. Shoul this tree thrive it will be a valuable acquisition to the fruits of the Colony.

Opsiandra mayo.

Two specimens of this palm were received from the same source as the abov mentioned. The following is the description which accompanied the plants :—

"A new species and genus from Peten, Guatamala, discovered and describe by O. F. Cook, of the Bureau of Plant Industry. This palm has a slender taper ing trunk about 6 inches in diameter at the base : it grows to a height of 60 fee or more and is supported on a conical mass of thick roots. The leaves are few usually about five or six, 8 or 9 feet long with about 90 pinnae on each side o the midrib. The flowers appear several joints below the leaves. The fruit is re and borne in clusters. The palm is of special interest as having been discovere growing on the ruins of one of the ancient Maya cities. It is a tropical species o interest mainly for botanic gardens and private collections".

Warszewiczia coccinea, Klotzsch.

Plants of the above were also received from the United States Departmen of Agriculture. Since the importation the growth made by them has been slow but they are in a healthy condition. The following is a description of the plan as given by Mr. David Fairchild, Agricultural Explorer, and is headed "Memo

lum concerning the Scarlet Plume". "The beauty of this ornamental tropical and its apparent rareness in collections prompt us to make a distribution of botanical gardens. These plants are grown from seed collected from a single found by Messrs. Dorsett and Fairchild near the Rio Succio on Gatun Lake, ama. The seed was secured through the kindness of Mr. H. Marti, of Gamboa, al Zone, and the plants have been grown under strict quarantine conditions. ey are believed to carry with them none of the tropical diseases which may ck these plants in their native habitat".

No more vivid description could be found of this beautiful ornamental tree n that of the famous botanist Spruce, in his "Notes of a Botanist on the azon" : "Here (near Ponta Paricatuba) we found.....a handsome Rubiad, *lycophyllum* (*Warszewiczia*) *coccineum* DC., with long rampant stems, rufous k peeling off in thin flakes, large opposite leaves and flowering peduncles one wo feet long, thickly beset with cymules of small yellow flowers, the outer- st flower of each cymule subtended by a large leafy bract, near three inches g, scarlet above, red beneath, and with its stalk so united to the calyx as to n a continuation of one of the teeth of the latter. Some parts of the cliff eared from below in a perfect flame from the abundance of these gorgeous cts to which the plant owes its Indian name, Coruse-caa or Sun-leaf.

The tree from which these plants came was in flower in August, and nothing ld be more striking than its brilliant scarlet plumes against the background of rgreen foliage."

This plant is new to St. Vincent, but it is found in Trinidad and Central erica, it is described in Grisebach's "Flora of the British West Indian Islands".

Hydnocarpus alpinus, Wight.

The seeds of this plant were obtained from the Imperial Commissioner of riculture. Two lots of seeds were received but from these only one plant was ed. This plant, like Taraktogenos Kurzii, King, imported in 1920, is interest- in that it yields Chaulmoogra oil, used in the treatment of leprosy.

Work in the Nurseries and Distribution of Plants.

The following is a list of plants, seeds, etc., distributed from the Nurseries, ached to the Botanic and Experiment Stations :—

Economic and Decorative Plants.

Coco-nut ...	...	...	3,743
Miscellaneous economic	...	...	2,856
Coffee ...	...	...	144
Onion Seedlings	...	...	200
Miscellaneous decorative	...	...	42
Mango (grafted)	...	...	12
			6,997

Cuttings.

Cane Varieties	...	...	83,200
Sweet potato ...	...	...	4,000
			87,200

Seeds.

Yam ...	...	...	200 lb.
Ground nuts ...	...	...	42 „
Cotton seed ...	...	...	9 „

The number of plants sent out during the period under report was 2,941 re than during the previous season. The greater number of plants under

"Miscellaneous economic" were young forest trees and were planted on lan owned by the Government with a view to reafforesting it. There appears sharp increase in the number of cuttings of cane varieties distributed, the figure when compared with those for 1923 show that more than twice the number wer sent out during the year under review. This may be regarded as an index the increased amount of attention that planters are giving to the question sugar-cane varieties.

A further lot of sugar-cane varieties were raised. The following gives th parents and the number of the seedlings retained at the Experiment Station fo trials :—

Parents.	Seedlings.
B. 6308	V. 1759, V. 1780
Ba. 6032	V. 1792, V. 1800, V. 1842
	V. 1865, V. 1869, V. 1870
	V. 1874, V. 1883, V. 1900
Black Savage Transparent ...	V. 1850, V. 1860,
Ba. 11569	V. 1915, V. 1920, V. 1922
	V. 1924, V. 1926, V. 1930
	V. 1953, V. 1954, V. 1955
	V. 1970, V. 1975, V. 1980
	V. 1982, V. 1990, V. 2000

It must be understood that the St. Vincent Agricultural Department, whe compared with some other similar Departments, attempts the raising of sugar-can varieties on a modest scale only.

Sweet Potatoes and Cassava.

The raising of new varieties of either of these two crops was not attempte during the year. Efforts were made to test out new varieties on hand. It wa felt that if large numbers of new seedlings of various crops were continually be ing raised, the danger of possibly overlooking some of merit might become pro nounced.

Inspection and Fumigation of Imported Plants and Seeds.

The following is a list of plants, etc., which were inspected and fumigate under the Importation of Plant Diseases Protection Ordinance, 1906 :—

Sorghum seed	...	...	50 lb.
Decorative plants	...	...	28
Bulbs ...	...	...	4 packages.
Miscellaneous seed	...	...	9 parcels.
,, ,,	...	...	½ lb.

Manurial Experiments at the Experiment Stations.

Sea Island Cotton.

These experiments were inaugurated in 1921 and since then have bee continuously conducted on the same piece of land. The plots are situated o Montrose Estate, the property of O. Hazell, Esq., K.C., and the thanks of th Department are due to this gentleman, and to his son, J. H. Hazell, Esq., for the co-operation in the work now commented on.

The plots were rectangular in shape, each being $\frac{1}{40}$ acre in area, there wer five series and each series was repeated four times, thus there were twenty plo in all.

The treatment that the plots in each series received was as follows :—

Plots 1	...	Control ; no manure.
,, 2	...	Pen manure, at rate of ten tons per acre.
,, 3	...	Green dressing.

Plots 4 ... Green dressing and Potash calculated as K_2O, at rate of 50 lb. per acre.

„ 5 ... Green dressing and high grade Nitrapo at rate of 2 cwt. per acre.

geon Peas were used for green dressing purposes; they were sown in rows on May 8—10, and were buried in the ground two months after g. To obtain some idea of the amount of material that was being covered, f the cover crop were cut and weighed. The weight obtained was at the 12,160 lb. or roughly 5½ tons per acre. To form some idea of the amount er that this material contained, a portion was carefully weighed, air dried en re-weighed. It is conceded that all the water would not by this method ined from the material in question, but undoubtedly the greater part of it nd the figures are probably sufficiently accurate for practical purposes. he 12,160 lb. given above 3,950 lb. of air dried green dressing was obtained; irds of the material grown for green dressing purposes and subsequently were composed of moisture.

he artificial manures were applied on July 14th, and the cotton seed planted lays afterwards.

he results are put forward in the following table and are calculated to lb. cotton per acre.

Treatment,	Yield seed cotton lb. per acre.	Mean yield per acre. lb.	Increase on no manure. lb.	Percentage increase.
No manure	1,030			
„	847			
„	942			
„	692	878		
Pen manure, 10 tons per acre	1,182			
„	1,077			
„	1,237			
„	1,020	1,129	251	28
Green dressing	1,352			
„	980			
„	1,225			
„	815	1,093	215	24
Green dressing 5½ tons+ Sulphate of Potash 50 lb. K_2O per acre	1,175			
„	1,320			
„	1,370			
„	1,190	1,264	386	44
Green dressing+2 cwt, high grade Nitrapo per acre	1,260			
„	1,077			
„	862			
„	940	1,035	157	17

t should be stated that the term Nitrapo is a trade term for a manure con- 15 to 17% of nitrogen calculated as ammonia, and 15 to 17½% soluble

s these experiments have been carried on without a break for the past three s and as exactly the same plots were used, and the same manures applied plots, it may be well if the results from the three seasons are put forward. re as follows:—

Plots.	Mean yield for calculated lb. seed cotton per acre.			Percentage increase over that obtained from plots 1.			Average percentage incr for three years over that tained from plots 1.
	1922.	1923.	1924.	1922.	1923.	1924.	
1	944	1,138	878	—	—	—	—
2	1,150	1,331	1,129	22	17	28	22
3	1,672	1,194	1,093	77	5	24	34
4	1,736	1,151	1,264	84	1	44	43
5	1,782	1,289	1,035	89	13	17	40

The most striking feature of the above is the poor results obtained in 19 from the manured plots. This was very pronounced in the case of plots three five and specially so in plot four. It must be remembered that 1923 was driest year experienced in St. Vincent since 1894, and it is possible that manurial constituents did not become available until too late for them to have appreciable effect on the crop. Again it may be that the growing of a gr dressing, combined with an excessively dry season may have deprived the soil so much moisture as to become insufficient for the general well-being of the cr This would also affect the availability of the manures applied. On the other ha only a poor dressing was obtained and turned under, and it is possible that results are indications of what is seen all over the island, *i.e.*, the need of orga matter in the soil. The results obtained in 1924 are encouraging and this wo will be continued in the future.

Cotton Research.

The following section, " the Pure Strain of Sea Island Cotton " to " Cytolog was written by Mr. L. H. Burd, B.A., Cotton Research Officer, St. Vincent.

The Pure Strains of Sea Island Cotton.

The nine pure strains with which a variety test was undertaken last year, h been continued and examined for boll loculus number, seed cotton per boll, per boll, lint weight, seed weight, and mean maximum lint length and lint len distribution by the sorter. Strains V. 135, A.J, B.D and B.F appear to be genetically pure as it is possible to make them, and with these, single pl selection has been discontinued selfed bulk samples being kept for maintena and distribution.

Spacing Experiment.

A spacing experiment was carried out this year using a new method, wh consists essentially in arranging the plants in rows so that the inter plant tances become smaller in one direction. In a plot of several such rows the pla may also be looked upon as being arranged in columns at right angles to the ro the distances between the columns being the distances between the plants in rows. Each column then consists of a series of plants at one spacing, and estimating the yield of each column separately and calculating to yield per a area, a tolerably smooth space yield curve should be obtained.

Working in this way, we obtained the curves shown in the figure, for and two plants per hole with banks four feet apart. From these it seems cl that,

(1) The maximum yield is obtained at spacing 17 inches and one plant hole.

(2) At 18 inches it is immaterial whether the plants are left one per hole two.

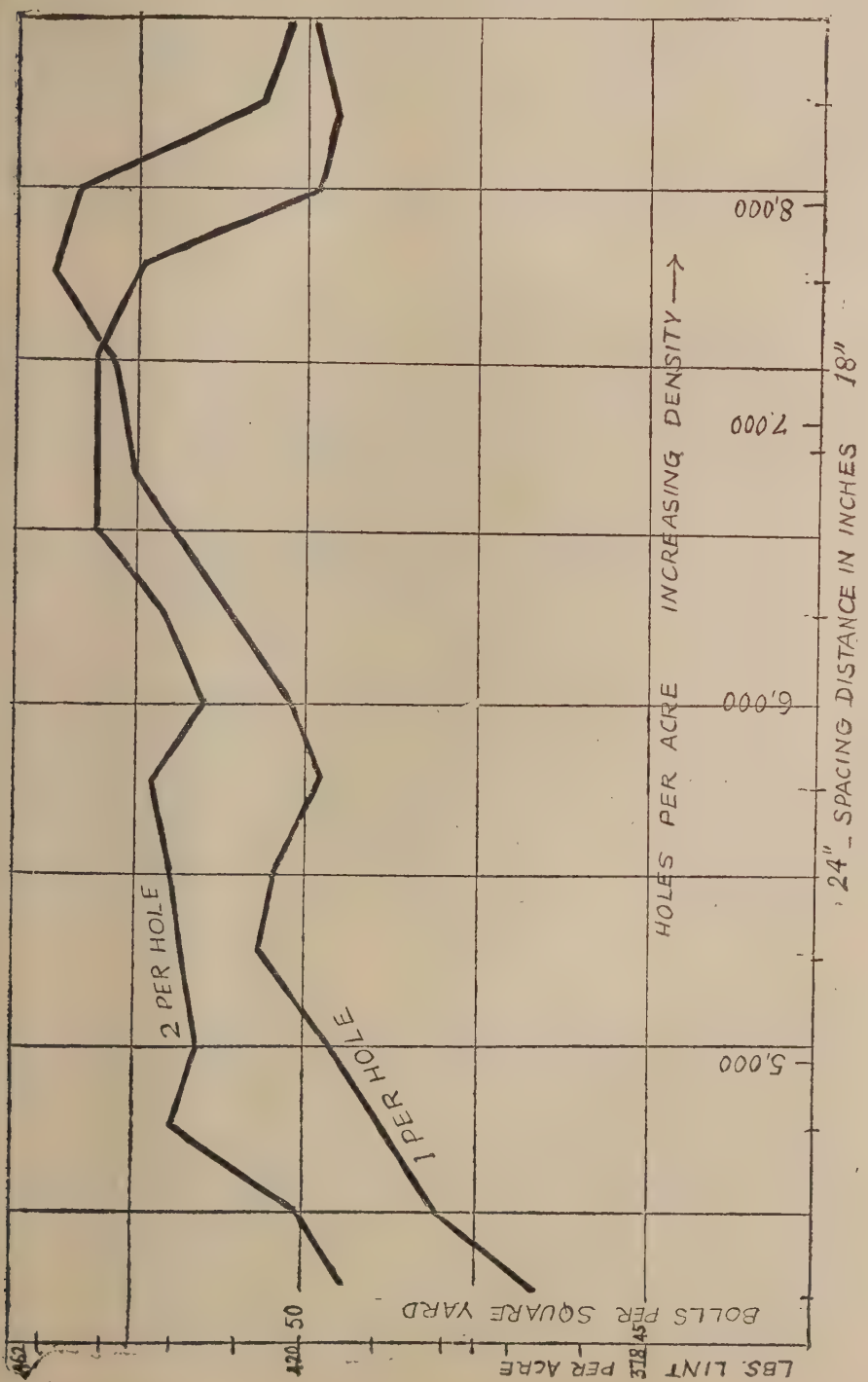
(3) At all spacings wider than 19 inches leaving two per hole will give su rior yield.

(4) The wider the distance the greater the increase of the two per hole over the one per hole series.

(5) The plants should never be nearer than 16 inches as this involves a decrease in yield per unit area.

From other data not given here it is clear that the earlier one makes the comparison, the greater the superiority of the two per hole series, *i.e.*, if the latter part of the crop be lost through pink boll worm, the two per hole method always gives greater yield.

A full account of this work has been published in Vol. II No. 3 of the Empire Cotton Growing Review.



Plant Development and Crop Analysis.

A short article on this subject has already appeared in "Tropical Agriculture." A group of plants of strain B.F. was grown for observational purposes, and daily records of growth, flowering, boll shedding and bolling were made. A comparison of these records with similar ones made in the previous season is interesting, and shows among other things that the same final result may be brought about in different ways. In 1924 growth rates were very much lower than in 1923, and this led us to expect, quite rightly as it happened, that flowering would be lower also. This lowering of the growth rate is certainly connected with excessive rainfall, there having been 16·5 inches during July. Since the flowering rate was lower we naturally supposed that the bolling rate and hence the crop would be lower also, but this expectation was not realized. The explanation lies in the rates of boll shedding which were very high in 1923–24 and nearly negligible in 1924–25.

Thus it seems that at any rate in the West Indies we cannot forecast the ize of the crop accurately from flowering records alone, because of the impossibility of forecasting the losses which intervene between flowering and bolling. All we can do with certainty is to state the time of arrival of the crop and when it will be finished and from the total number of flowers produced per average plant, deduce a possible maximum.

Lateral Root Development.

It has long been known that plants growing on the outside of a plot are in a more favourable condition as regards their growth than the remainder and outside plants are almost invariably excluded from the records of plot experiments. Little or no attempt however has been made at any rate with cotton, to find out how far these marginal effects may extend into the plots; such knowledge would be valuable as its application would tend to reduce the probable error of plot experiments.

From flowering and bolling data collected during the course of the spacing experiment we were led to the conclusion that the marginal effect was extending 6 or 7 feet into the plots. This meant that the plants 6 or 7 feet from the edge were deriving some benefit from the path, and consequently, if this conclusion was correct, their roots must extend at least 6 or 7 feet laterally. This seemed surprising so we attempted a direct verification.

A trench was dug alongside the dense end of a row of one of the one per hole plots, and the roots excavated with a water jet. In this way we succeded in tracing one lateral for a distance of 5 feet 4 inches and another for 4 feet 10 inches, and even then an unbroken end was not reached, so that a length of 6 feet or more is certainly a possibility. This seems to show that the mere exclusion of outside plants is quite inadequate for the exclusion of marginal errors, and that in St. Vincent at any rate, all plants less than 7 feet from the edge of a plot should be discarded.

Genetics.

The inheritance of lint length, lint weight, seed weight, corolla length and corolla colour is being investigated in various crosses.

As regards lint length it seems probable that we shall be able to breed a cotton of any length to 'order' within certain limits, although the precise mode of inheritance seems to vary in different crosses, so that without a trial it will be impossible to predict what will happen in any particular case.

Lint weight seems in general to behave in the same way as lint length, though there is a strong negative correlation between the two which is unfortunate from the practical point of view, since it means that we shall probably be unable to synthesize a cotton combining very long lint with a high lint weight per seed.

Corolla colour has only been examined in one case, white x full yellow. The cross is an interesting one, as the white flowered plants are also characterised by

ort lint and it is more than possible that there will be some correlation between length and flower colour in later generations.

Work of the Sorter.

Routine examinations of cottons by this machine has been initiated, and as a lt of practice our manipulative skill has perceptibly increased so that the lts we are now getting are more accurate than they have been heretofore. ost all the varieties growing on the Experiment Station have been examined, several unsuspected differences have been brought to light. In particular the te flowered rogue from A.N., which has now been isolated to a separate in, has been found to have an unusually uniform though short lint.

The V. 135 has the longest lint and does not seem to be so wasty as we gined. The compositions of those strains by weight are as follows :—

Lint length in mm.	Percentage by weight V. 135.	A. N. white flowered rogue.
5	1·24	0·89
10	1·86	1·78
15	1·24	2·66
20	2·48	2·66
25	3·72	3·56
30	3·72	8·88
35	5·60	24·00
40	6·84	40·00
45	14·90	12·28
50	33·60	2·66
55	19·90	
60	3·72	
65	1·24	

These figures are taken from observations on single seeds.

Cytology.

A hasty and brief examination of the process of fertilization was made this r, in order to find out whether the phenomenon of "double fertilization" dis- ered by Guinard, and which has since been shown to be usual in higher plants, lly takes place in cotton. The few preparations made were far from convinc- , and in none of them was there undeniable evidence of a triple fusion nucleus synergidæ, the female, and two pollen nuclei could be made out, and so far as evidence goes it tends to confirm the idea that double fertilization does take e. This will have to be taken into account in any attempt to unravel the eritance of endosperm characters.

Experiments with Ground Provisions.

Yams, Varietal Experiments.

Experiments with nine varieties of yams were conducted during the year. re were two plots of each variety planted, and the area of each plot was 160 are feet. The plants were planted on June 17th and reaped on December 13th. The results are put forward in the following and are calculated to lb. of tubers acre.

Variety.	Calculated yield per acre.		Mean.
	lb.	lb.	
Bottle Necked Lisbon ...	14,974	4,220	9,597
Lisbon ...	5,990	7,079	6,534
Seal Top ...	5,717	5,445	5,581
Oriental ...	1,634	8,984	5,309
Crop ...	7,759	2,178	4,868
Horn ...	6,670	2,723	4,696
Bugle Horn ...	2,723	4,901	3,812
Light Red ...	3,675	2,178	2,926
Danish ...	1,634	4,084	2,859

Little comment is required in connection with the above, but it might be that Lisbon and Bottle Necked Lisbon have, in these experiments and in sim ones conducted in the past, consistently given good yields. Heavy yiel properties appear to be characteristic of both.

Staking Experiments.

The same varieties were used for this experiment as used for the one above ported on. The areas of the plots were the same in both instances and the were planted and reaped on the same dates.

The following table gives the results calculated to lb. of tubers per acre :—

Variety.	Unstaked plots : yield per acre, lb.	Staked plots : yield per acre, lb.	Increase or decr of staked on staked per acre
Bugle Horn ...	3,812	10,550	+7,038
Seal Top ...	5,581	8,711	+3,130
Lisbon ...	6,534	8,780	+2,246
Light red ...	2,926	4,288	+1,462
Danish ...	2,858	4,016	+1,158
Oriental ...	5,309	5,989	+680
Horn ...	4,696	5,081	+385
Crop ...	4,868	2,859	−1,827
Bottle Necked Lisbon ...	9,597	9,120	−477

It will be seen that seven out of the nine varieties experimented with increased yields when staked. In connection with this it will be said that m peasant growers of this crop without really being cognisant of the fact pro stakes for it. Maize is often grown with yams as a catch crop and the stalk this form the stakes.

It might be stated that a fair number of the yams grown on these were stolen before the produce was reaped.

Sweet Potatoes, Varietal Experiments.

Experiments with sweet potatoes were again carried out during the No new varieties were raised in 1924, but it is hoped to raise further lots in coming season. Work of raising and testing out new varieties of any crop lengthy business, but undoubtedly worth while as the raising of new varietie most crops is an important factor in increasing production. So far the suc obtained during the past few years in St. Vincent in connection with the rai of varieties of this crop is satisfactory and moderately large areas of heavy bea

new varieties of sweet potatoes are coming into existence which, other factors being equal, will result in increased returns.

There were eleven varieties experimented with, and as four plots of each were planted there were forty-four plots in all. The two varieties, Emma and Daggit against which the new varieties were tested are what may be termed, local standard varieties. The plots were planted on August 2nd, and reaped on November 29th. The area of each plot was 188 square feet ; they were rectangular in shape. Results calculated to lb. of potatoes per acre are put forward in the following table :—

Variety.	Yield per acre, lb.				Mean.	Percentage increase or decrease on	
	Plot 1.	Plot 2.	Plot 3.	Plot 4.		Daggit.	Emma.
1. V. 94	4,797	5,186	8,289	5,964	6,061	+76	+31
2. V. 74	4,797	6,742	4,797	7,131	5,867	+71	+27
3. V. 94	3,112	5,186	1,156	13,317	5,693	+66	+23
4. V. 102	3,501	2,593	7,779	6,871	5,186	+51	+19
5. V. 52	4,797	5,964	2,463	6,612	4,959	+44	+17
6. Emma	1,945	4,149	7,001	5,445	4,631	+35	...
7. V. 103	4,149	5,186	2,334	5,186	4,214	+23	−9
8. Daggit	4,278	908	4,408	4,149	3,436	...	−26
9. V. 133	1,815	2,723	3,112	1,555	2,302	−33	−50
10. V. 110	1,167	389	2,074	2,852	1,621	−53	−65
11. V. 50	1,556	1,037	1,556	1,297	1,362	−60	−71

The returns from all of these plots were much less than those obtained in previous trials.

Sweet Potatoes Length of Cutting Experiment.

During the year 1923 an experiment was conducted with cassava in which plots were planted with cuttings of varying lengths. It was found that the plots in which long cuttings were planted gave yields considerably in excess of those which had been established by means of short cuttings. An experiment of a nature similar to this was laid out during the period under report but the crop experimented with was sweet potatoes. Cuttings six inches long, one foot long and two feet long were used. It is almost needless to add that all were obtained from the same variety. For this trial cuttings were planted on banks and each bank was regarded as a plot. The area of each plot was 248 square feet, and there were four plots of each.

The plots were planted on October 25th, and reaped on February 12th. The results are put forward calculated to lb. of potatoes per acre, as follows :—

Plot.	Length of Cuttings.	Calculated yield per acre lb.	Mean yield per acre.	Percentage increase on 6" cuttings.
1 a	6 inches	5,795		
1 b	,,	6,497		
1 c	,,	7,639		
1 d	,,	8,253		
1 e	,,	7,639	7,162	
2 a	1 foot	7,024		
2 b	,,	10,185		
2 c	,,	10,799		
2 d	,,	8,868		
2 e	,,	11,765	9,748	36·1
3 a	2 feet	14,926		
3 b	,,	17,033		
3 c	,,	16,155		
3 d	,,	18,965		
3 e	,,	14,750	16,366	128·5

The results as given above are interesting and of importance, the increases obtained being decidedly significant. As a rule the quantity of cuttings of this crop available when it is being planted is considerable, and judging from the above it would more than pay planters to select long cuttings for planting purposes. An increased production of more than 100 per cent is really worth while.

Sugar-Cane Varietal Experiments.

This is the third year that experiments with sugar-cane varieties have been carried out in St. Vincent. In these experiments only plant canes have been experimented with; experiments with ratoon have not been conducted.

The canes for these trials were grown in single rows, the area of each plot was $\frac{1}{40}$ acre. Whether the single row method of experimentation is conducive to obtaining more accurate results than that of the rectangular plot method is perhaps open to argument, it is, however, the more easily worked one of the two.

It is hoped that as time progresses the results obtained from these experiments will help planters to choose the best variety to grow in the district in which these experiments are conducted. For this work to be of a complete nature more stations than now exist should be established. It would then be possible for planters in a short space of time to concentrate on one or more of the varieties suitable to the conditions obtaining in the district in which each resides. Such a course would probably not only result in greater returns, but also better manufactured product, for planters would then be growing definite strains. It is acknowledged that these experiments, when compared with those conducted in some sugar producing islands, are on a very small scale, but it must be remembered that agriculture in St. Vincent is of a very diversified nature, and the efforts of the Agricultural Department are as far as possible so apportioned that each crop gets the attention commensurate with its value.

The experiments under discussion were laid out on Diamond Estate, the property of A. Punnett, Esquire, a gentleman planter who gives most willing co-operation to the Agricultural Department. Eighteen vartieties were experimented with and with three exceptions were in duplicate. The exceptions were B. 147, V. 99 and Waterford No. 2. Only one plot each of the last two varieties was planted ; of the first mentioned variety three plots were planted, but only one was reaped. The three were laid out contiguously, and results were obtained from the centre one. The reason for this procedure was that this variety is, in the early stages of its existence, of slow growth, and it was felt that more reliable results would be obtained if this method were adopted than if the plots were scattered.

The method of reaping and testing was similar to that carried out in previous years. The canes from each plot were cut and weighed, and from each variety 100 lb. of canes were selected, taken to the estate mill and crushed, and the extracted juice weighed. Samples of the juice of each variety were sent to the Laboratory and the density obtained by means of a Brix Hydrometer. It must be stated that such results are not absolutely correct as the total solids in cane are not entirely sugar but they are sufficiently correct for practical purposes. The results are put forward in tons of cane per acre, gallons of juice per acre, gallons of juice per ton, sucrose lb. per gallon of juice, and sucrose lb. per acre in juice. Much of the information appearing below was obtained by using the tables dealing with specific gravities of cane juices, which appear in the West Indian Bulletin Vol. 14, page 193.

No. or name of cane.	Mean of 2 plots cane.	Juice.		Sucrose.	
	Tons per acre.	Gallons per acre.	Gallons per ton.	lb. per gallon of juice.	lb. per acre in juice.
Ba. 11569 ...	20·4	2,348	115·1	2·158	5,067
V. 99 ...	15·23	2,138	140·4	2·112	4,515
B. 6450 ...	13·6	1,772	130·3	2·130	3,774
B. 163 ...	10·43	1,538	133·1	2·117	3,256
Sealy Seedling ...	11·8	1,507	127·7	2·129	3,208
B.S.F. 12 (27) ...	12·17	1,430	117·5	2·112	3,029
B. 6308 ...	11·73	1,453	123·9	2·059	2,992
B. 154 ...	11·25	1,368	121·6	2·117	2,896
B.S.F. 12 (27) ...	12·11	1,299	107·3	2·152	2,795
Ba. 6032 ...	13·00	1,397	107·5	2·000	2,794
Ba. 12079 ...	10·08	1,250	124·1	2·129	2,661
B.H. 10 (12) ...	10·96	1,229	112·2	2·117	2,602
B. 164 ...	9·88	1,068	108·1	2·129	2,274
B. 147 ...	9·91	1,014	128·6	2·053	2,082
Waterford No. 2 ...	9·27	967	104·2	2·019	1,952
Ba. 7924 ...	7·8	855	109·6	2·109	1,803
V. 70 ...	5·83	699	119·9	2·024	1,415
B.S.F. 12 (45) ...	5·25	570	108·6	2·088	1,190

The above list is headed by the variety Ba. 11569, with a return of 5,067 lb sucrose per acre. The juice possessed a saccharine richness of 2·158 lb. per gallon. is is the second time that this variety headed the list in experiments conducted Diamond Estate. When tested in previous experiments against sixteen rieties on an estate in the Leeward District it took fifth place. It would seem, erefore, that this cane may be regarded with a certain amount of confidence by th planters on the Leeward and drier parts of the Windward coasts, and until ther work of the description under discussion has taken place it can be recommended for planting purposes. The variety is of erect habit, possessing medium ed canes, which are yellow in colour.

The variety which took the second place in these trials is V. 99 and is one at was recently raised by the St. Vincent Agricultural Department. It should recorded that this is the first time that any variety raised in St. Vincent has peared in any experiment or as has been grown on any estate. It must be nembered that this "local youngster" was tested against varieties of well known putation. It is hoped as time progresses to introduce more local seedlings into ese experiments. The variety now discussed gave a return of 4,515 lb. of crose per acre, with a juice possessing a saccharine richness of 2·112 lb. per llon. The calculated tonnage of canes per acre was 15·23. This variety has erect habit, with fairly stout light green canes. When grown in poor land it en has a brownish green colour. It possesses somewhat short cylindrical ernodes.

The variety which took third place was the well known Barbados variety 6450. This variety when ripe is bright yellow in colour with a habit someat inclined to trail. The saccharine richness of the juice of this was 2·130 lb. r gallon, and it gave 3,774 lb. of sucrose per acre, from 13·6 tons of cane. In evious trials this variety took eighth and tenth place when tested against sixteen iers.

B. 163 took fourth position. This produced sucrose at the rate of 3,256 lb. r acre, with juice of a saccharine richness of 2·117 lb. per gallon. In these periments this variety yielded 10·43 tons of cane per acre. This cane in habit somewhat inclined to trail, it possesses medium sized internodes and is yellow colour.

The variety next on the list is Sealy Seedling. This has the reputation in me islands of being particularly adapted to heavy soils. Its habit is erect and

it possesses as a rule a large number of somewhat slender canes per stool, in colou it varies from a brownish green to that of a brownish yellow. In an experime previously conducted on an estate on the Leeward coast this cane came first, a regards tons of cane per acre, when tested against sixteen other varieties. Durin the trials under discussion Scaly Seedling yielded 11·8 tons of cane per acr and 3,208 lb. of sucrose, the saccharine richness of the juice being 2·129 lb. p gallon.

B. S. F. 12 (27) gave a calculated yield of 12·17 tons of cane per acre, an 3,029 lbs. of sucrose, the saccharine richness of the juice being 2·112 lb. p gallon. This variety grows erect, and possesses a moderately stout stem, yello in colour.

The tenth place on the list is occupied by Ba. 6032, a yellowish green can which is slightly crooked and fairly stout. The amount of sucrose produced wa practically on a par with that obtained from the previous mentioned variety. gave a calculated yield of 13 tons of cane per acre, with juice of a sacchari richness of 2·0 lb. per gallon.

No useful purpose would be served by commenting at length on the remai der of the varieties, but there appears among these the well known variety B. H 10 (12). This is a brownish green cane and bears a good reputation in som sugar producing countries. Again B. 147 has been very extensively planted i some West Indian Islands. When ripe the cane is bright yellow in colour. Th variety is moderately common in St. Vincent. The new local variety V. 7 came very low on the list.

Cotton Selection.

The laboratory work connected with cotton selection conducted during th season 1923-24 synchronised with the writing of the Report on the Agricultur Department for the year 1923. In consequence of this the data obtained wer not put forward in the Report immediately preceding this. Work was done o both Sea Island and Marie Galante cotton, and the material worked on was o tained from bolls which had been self pollinated when in the flower stage.

In the following tables lint lengths are put forward in millimetres and th figures in the lint indices as grammes. The plants from which the results wer obtained have been grouped in families, and the tables indicate the characters an degree of variability in each. The crosses in the tables show parental values. I the following lint lengths for Sea Island are given :—

SEA ISLAND.

LINT LENGTH.

Fam:	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56
6				3	3	5	5	5×	2						
19	1	6	4	4	4			×							
31					8	4	0	2×	1	2					
36					2	4	7	3×	6						
58		1	0	3	10	4	1	1	×						
13		1	4	2	5	2	2			×					
24				1	5	6	4	1	2	0	1×				
144				1	3	3	8	6	2	2	2×				
192					1	1	1	8	7	5	2×				
39			1	0	0	6	4	4				×			
51		1	2	2	7	6	2	5				×			
118			1	6	9	5	1	2				×			
133				1	6	6	2	2				×			
166							1	4	7	5	4	1×			
50					1	3	5	5	1	1			×		
185									4	1	2		×		
77				1	3	2	5	1	2	0	1			×	
193						1	3	9	13	14	6	1		×	
41			1	4	1	5	4	1							

The most noticeable feature of the above is the falling off in lint lengths en comparison is made with those possessed by the parents. This is probably e to the dryness of the season during which they were grown, and is more iceable in some families than in others. Possibly some of these are approach- purity but the numbers are too small for anything definite to be said about m.

The following gives the lint index for Sea Island cotton.

SEA ISLAND.

LINT INDEX.

Fam.	3·4	3·6	3·8	4·0	4·2	4·4	4·6	4·8	5·0	5·2	5·4	5·6	5·8	6·0
144				1	2	4×	10	5	2	2				
166				1	2	8×	7	2	2					
41	2	0	2	1	5	1	3×	2						
185						5	0	1	0×	1				
77				1	0	1	2	0	6	3×	0	1	1	
133								2	2	6×	4	3		
193				2	3	8	10	13	7	4×				
24								2	7	4	5×	1		
50										1	7×	2	4	2
192									8	7	6×	3	1	
51							4	11	5	4	1	×		
6								1	1	12	6	2	1×	
13				1	3	5	0	5	1	1			×	
19					1	0	1	9	5	0	3		×	
36							2	6	8	2	3	1	×	
58								4	5	6	4	1	×	
118								4	3	8	6	3	0×	1
39									4	4	2	4	0	1×
31										4	5	2	4	2×

In the table of lint lengths of Marie Galante there is not the same falling off length as there appears with Sea Island. It should be stated that this type of ton was grown in Union Island which is situated some forty miles from St. ncent, and it experienced good rains during the growing season. The figures t forward indicate that this type of cotton is less pure than the Sea Island; s was to be expected.

MARIE GALANTE.

LINT LENGTH.

Fam.	38	39	40	41	42	43	44	45	46	47	48	49	50
34·2	×		1	1	0	1	2						
40·10	×	2	1	2	1	2	2	3					
82·4		2×	1	2	0	0	1	2					
82·7		×			1	1	1	1	2				
44·2						1×	2						
23·5		1	0	0	3	0	1	2	1	×			
78·2	1	1	1	1	3	1							×

The lint index as given below shows that the plants grown during the year der discussion yielded a much lower weight of lint per seed than their parents did the previous year. Comparison between these figures and those put forward for a Island show the great difference between the amount of lint produced per seed by ese two cotton. This fact is known commercially and purchasers of Marie Galante ed cotton base their prices on the expectation of obtaining not more than 23% lint

MARIE GALANTE.

LINT INDEX.

Fam.	1·8	1·9	2·0	2·1	2·2	2·3	2·4	2·5	2·6	2·7	2·8	2·9	3·0	3·1	3·2	3·3	3·4
78·2 ...				2	0×	2	0	2									
23·5 ...		1	0	0	0	2	3	1	1						×		
34·2 ...					1	0	3	1							×		
44·2 ...						1	1	0	1							×	
40·10		2	4	0	1	0	1	0	1	0	4						×
82·4 ...			2	0	1	0	3	0	0	0	1	0	1				×
82·7 ..					1	0	1	0	1	0	0	0	2				×

Work Connected with Insect and Fungus Pests and their Control.

The Cotton Stainer (*Dysdercus delauneyi.*)

The unremitting work that in the past has been carried out in connecti with the control of this pest has produced good results. To bear out the prece ing statement data of a somewhat striking character are adduced below. Duri the past few years figures have been obtained and recorded at the Experime Station, of the approximate number of stainers captured each month. The wo of actually counting proved too laborious, and trials were made to find out t number of stainers, of varying ages, that would weigh one ounce. It was fou that 107 was the average number, and this was regarded as a constant. T work, therefore, resolved itself finally into one of weighing and not one of cou ing, weights of insects being converted into terms of numbers of insects. It conceded that counting would perhaps have been preferable, and again so minds would have preferred the insects to have been classified into stages growth, but the method adopted will do for practical purposes. The number stainers caught was regarded as a rough index of the quantity in most parts of t island in any one month. Again, exception may be taken to this, one argume might be that only a few acres of cotton are grown at the Experiment Stati and that this small area would not attract these insects to the same extent as s hundreds of acres. On the other hand it might also be argued that there a more stainers at the Experiment Station than there are in most places in t island, and this would be on account of a Cotton Ginnery being within a fe yards of it, which undoubtedly, especially towards the end of the season, proves powerful attraction. In any case the figures put forward are for three years a they point out to all the results, from at least one angle, of the work discusse

Approximate number of Cotton Stainers accounted for at Experiment Station during past three years.

Months.	1922.	1923.	1924.
January ...	135,900	37,600	17,800
February ...	548,410	63,800	5,400
March ...	129,660	51,888	930
April ...	40,760	5,002	1,225
May ...	6,109	817	52
June ...	3,693	908	—
July ...	230	550	—
August ...	209	87	—
September ...	88	3	—
October ...	89	8	—
November ...	910	—	—
December ...	910	377	57

In January, 1925, only 1449 stainers were accounted for, this is a very considerable improvement on that of the preceding January, when more than twelve times the number were captured.

We see from the above that during six months of the year 1924 no stainers were found on cotton at the Experiment Station and for a further two months they existed only in negligible numbers. It is suggested that such a condition has not existed, probably, since the inception of the cotton industry some twenty years ago. It is quite possible that some readers will not credit the above but it was clearly demonstrated during the year when Dr. C. L. Withycombe, Lecturer in Entomology and Zoology, Imperial College of Tropical Agriculture, paid a short visit to St. Vincent in December last. He arrived at a time when, in the past, stainers were very numerous, and he came with the intention of studying these insects. The object of this visit was defeated on account of there being, speaking broadly, no stainers in the island.

The campaign carried out during 1924 in connection with the control of this pest may now be conveniently discussed. It consisted of—

a. The enforcing of a Close Season.
b. The trapping of the pest when found in numbers.
c. The destruction of food plants.

As regards the method firstly mentioned above. The same procedure as originated in the past by the writer was again carried out. The island was divided into sections and an Agricultural Officer was placed in charge of each and made responsible for stainer control therein. The Close Season was from April 1st to May 31st. In St. Vincent there was only one planter who did not observe the law. In Bequia, however, twentyfour men did not observe it and charges were brought against all. Before further comment is made it must be stated plainly that, on the whole, the cotton planters did their best to clean up their fields in a thorough manner. In some cases fields were actually brushed, palm leaves being used as brushes. It is refreshing to be in a position to write this and it is to be hoped that this standard will be maintained. In the one case cited above about $4\frac{1}{2}$ acres of cotton had not been destroyed. The plants had been uprooted and there was in the field a fair quantity of seed cotton on which stainers were found in all stages of growth. The work of burning, setting traps, etc., was immediately taken in hand, and the area was regarded as free in a month after work commenced. To illustrate how very careful and observant a man must be if complete control is to be maintained, the following instance is given. Some two or three weeks after control measures in the field immediately mentioned above had been abandoned, some individual left cotton seed meal in the ruins of a building situate some few hundred yards away from the field. This had attracted stainers and although they were only in moderate numbers, they were sufficient to breed up and possibly cause considerable damage to the succeeding cotton crop. In one place on the Windward coast stainers were found in large numbers. The cotton plants had been destroyed before the beginning of April. Control was somewhat complicated by the fact that there were large numbers of *Momordica Charantia* and Sida plants. The complication arose from that it has been demonstrated that cotton stainers can, if previously fed on cotton seed, subsist and lay fertile eggs when food material furnished by these two plants is available. Again, there was growing in an adjacent field, a crop of pigeon peas, and it has also been observed that these insects can "carry on" for a considerable length of time on the fruit and flowers of this plant. The work of control was started in April but was not regarded as complete until July. A period which could easily have been reduced if energy had been shown, a factor which would have greatly minimised the danger of a carry over.

Attention was given to the destruction and pruning of Silk Cotton (*Eriodendron anfractuosum*, D.C.) and John Bull (*Thespesia populnea*, Soland) trees. 12 of the former and 21 of the latter received attention.

The season just concluded may be regarded as highly successful with respect

to cotton stainer control. It demonstrates the amount of success that can obtained in the control of a pest when the right thing is done. It should pointed out in all sincerity that the slightest relaxation of efforts would a cause the appearance of the pest in numbers and the consequent loss of thousa of pounds to planters. At the present moment St. Vincent is prosperous, prosperity depends to a considerable extent on its cotton industry, and the wel of the cotton industry depends in large measure on the control of the cot stainer. It has taken years of work, at times arduous in nature, to obtain conditions stated above ; it is up to cotton growers, to a very great extent, keep them where they are.

The Pink Bollworm (*Platyedra gossypiella*).

During the year the Cotton Protection Ordinance No. 6 of 1924, with ne sary Regulations, came into force. Although this Ordinance is generally for protection of cotton it is quite possible that it would not have been necessary it not been for the advent of the pink bollworm. The Regulations in this Or ance are of a wide nature, those pertaining to the control of the pink bollw may be conveniently classified as they appear in the original Ordinance. T give the Governor in Council powers over the following matters :—

(*a*) The control of Cotton Ginneries (with respect to the eradication prevention of insect pests and diseases).

(*b*) The fumigation and disinfection of seed.

(*c*) The transport of cotton seed, seed cotton, cotton seed meal and all b and packages which have been used therewith.

(*d*) The disposal of cotton seed, seed cotton, cotton seed meal, cotton pla or any portion of the same seized for the contravention of the Or ance or any regulations made thereunder.

(*e*) The storage of cotton seed, seed cotton, cotton seed meal and all b and packages which have been used therewith.

(*f*) The eradication of and the prevention of the spread of the Cotton Sta and Pink Bollworm and of other insect pests and diseases includ the destruction of any trees, shrubs or herbs upon which the Cot Stainer or Pink Bollworm or other insect pests of cotton are accust ed to feed.

It was under the authority of this Ordinance that the work of controlling pest in question was carried out.

During the Close Season the work of Officers consisted mainly in the exa ination of Ginnery books supervising the fumigation of seed and in enforc regulations as regards the storing of fumigated seed in moth proof buildin Each ginnery was equipped with a fume proof room for fumigating purpo All such rooms were measured and the cubic capacity obtained. This was plai stencilled on the side of the room, and immediately below, there appeared in pl lettering the amount of carbon bisulphide to be used for each fumigation. cotton seeds from the gins were fumigated each night, and the amount of car bisulphide used was at the rate of one pound per 120 cubic feet of space, books kept at the ginneries there appeared the amount of carbon bisulphide p chased from time to time, the amount in stock, and the quantity used daily ; a the amount of cotton ginned with the amount of seed fumigated. With this d in front of them Inspectors could see at a glance whether the individuals in cha of ginneries were doing their work or not. At first fumigation caused so trouble, but this was to be expected when attempting to control a pest of wh no previous experience had been obtained : it was quickly overcome.

Some difficulty was met with in getting Regulations 3 and 8 satisfactor carried out. The first provides for cleaning up, and the latter for the disposal seed within two weeks after the end of the Close Season, meaning cotton s other than that required for planting purposes.

It became evident as the end of the Close Season approached that the pers

charge of Cotton Ginneries could not, unless very energetic measures were taken, clean up their buildings and thus comply with the law. Eventually the Agricultural Department took over this work, it was felt that more good would accrue by doing this, and so decreasing the chances of a large carry over of pink bollworm, than by invoking the aid of the law, which at times is slow moving. At one ginnery some 300 bags of cotton seed meal was bagged and conveyed to a cloth proof room. Seed was removed from gins, seed shoots, cracks in floors, elevators, delinter, etc. In addition 400 bags were cleaned and fumigated; subsequently yards, drains, etc., received attention. At another ginnery work of a similar nature was carried out. In this place, however, casks, cords of wood and bales of cotton had to be removed before the work was completed. In addition, portions of one of the floors of a building had given way, which necessitated the whole flooring being taken up. Underneath was found quantities of cotton seed, and much larger quantities of shavings and miscellaneous rubbish. The carrying out of this work was done by Mr. Simmons, Foreman, Experiment Station, who did it in a thorough manner.

Large quantities of seed were on hand two weeks after the end of the Close Season, which according to law, should have previously been converted into meal or buried. It was decided, however, that this should be exported and some 212 tons were so disposed of. This was particularly unfortunate from an agricultural view point, as the land in St. Vincent sadly requires organic manure.

Isolated instances of pink bollworm attack were first noticed in St. Vincent, during 1924, on September 22nd. It will be remembered that this pest was first detected in this island in December 1923, when a rough survey of the island was made with a view of obtaining an idea of its prevalence and intensity of attack. Similar work was done during the same month in 1924 and the considered opinion was arrived at that this pest was not doing any more damage than during December in the preceding year: this is a matter for congratulation. But it does not mean that we can afford to treat pink bollworm with levity. Planters should not forget that the secret of control is cleaning, in a thorough manner, both fields and cotton houses before the advent of the Close Season. If this is done, the pest can be kept down to such an extent that its depredations during the first picking will be trivial; second pickings were always problematical in St. Vincent.

In the Report on this Department for the year 1923, fears were expressed, and reasons given for the birth of these fears, that the appearance of the pink bollworm in the Southern Grenadines would create a set of conditions such as to preclude the growing of Sea Island and Marie Galante cotton in one and the same island. A recent visit to these islands has convinced the writer that this prognostication was correct, and the growing of Sea Island cotton has been prohibited therein. The general idea in some of these islands is that the pink bollworm prefers, as a food, the bolls of Sea Island cotton to those produced by Marie Galante. This is as far as the writer can judge, not so. The bolls of Sea Island cotton are formed some considerable time before those formed by Marie Galante, and in addition very often, they grow some distance away from plants of the other type. Food is firstly made available for pink bollworms by the long staple cotton and while this is available it is reasonable to assume that they will not leave it for another source. Pink bollworm has not accounted for any considerable damage in the Grenadines, with the possible exception of Bequia. This was probably caused by cotton growers failing to observe the Close Season.

As previously stated the attack of this pest was, during the period under report, first noticed in isolated instances in the month of September. The pest was not seen at the Experiment Station until November. As soon as this was observed an Observation Plot of cotton was set aside. The object of this was to form some opinion as to the rapidity with which this pest increases. One hundred bolls were taken from the plot at intervals of approximately a week. A boll which showed an "emergence hole" or one in which a worm was found, no matter at what age, was regarded as infected. A better method than this could

easily be devised, and it is hoped to adopt a different one next year. The follo ing gives the dates of examination and the percentage infestation.

These figures are taken into the year 1925 so, as it were, to round off the sto

Date	Percentage infestation.
24/11/24	1
1/12/24	5
8/12/24	11
15/12/24	13
27/12/24	15
5/1/25	22
12/1/25	59
26/1/25	76
2/2/25	88
9/2/25	98
16/2/25	99
22/2/25	100

In three months the number of bolls attacked by this pest increased fro 1% on this plot, or practically zero, to 100%. These figures are worthy of peru by St. Vincent planters.

This pest has few natural enemies, and if it had, its method of attacking t bolls would extend to it a considerable measure of protection. A small lizard w observed to eat the larvæ with avidity. The Saint Vincent Black Bird (Quiscal luminosus) is always found hopping around trays of seed cotton when it is dryi and judging from the known habits of this bird it is quite possible that it do devour a certain number of the insects when in the open boll or in seed cotto If the larvae were always easy to get at these birds would probably be a fact of economic importance in connection with control. It may be stated that pr tracted periods of dry weather help to keep the pest in check but these are seld or never experienced during the cotton growing season. Therefore little in t shape of control can be looked for in these latter mentioned sources.

Cotton Worm (*Alabama argillacea*).

An attack of cotton caterpillars was experienced in the southern part of t island during the month of August. The attack was in no way so severe a persistent as that experienced in 1923 ; it was, however, sufficient to indica e t planters that this pest is one that he has to keep a careful look out for. Ea year planters should be prepared for its advent, not only with insecticides but al with the means of applying them. It is true that, perhaps, three years out every five cotton caterpillars do little or no damage to the cotton crop, but the have demonstrated in the past that they are quite capable of accounting f damage of an extensive nature. St. Vincent is particularly fortunate in that possesses many parasitic enemies of this worm, but too much reliance cannot t placed on their capabilities of control.

Red Ring of Coco-nuts (*Aphelenchus cocophilus*).

The existence of this disease among coco-nuts in St. Vincent was not know until 1923. The disease which may cause serious losses in young plantatio was described in the Report for 1923 pp. 25-26. Speaking generally moi conditions are necessary for the well-being of this nema. St. Vincent is a island with a high rainfall but it also has a particularly porous soil from whic water rapidly disappears. With such a set of conditions the soil moisture durin the dry season is possibly very much less than that obtaining in some neighbour ing islands, and in the wet season water rapidly runs off. This may not be

of conditions conducive to the welfare of a number of crops, but it is possibly ctor, and an important one, in keeping this pest under control.

A large area of the coconut cultivation is now passing out of the most ical period as regards infestation ; vigilance should not however be relaxed, as h cases may occur up to the tenth year from planting or even later, although inishing numbers as a rule. The most critical period may be said to be from fourth to the sixth year from planting and many young trees are now or will be approaching this age. The importance of locating and attending oughly to the early cases, which are always liable to be centres for spread-infection cannot be stressed too much. The treatment should include the ing of all parts of infested trees as thoroughly as possible and the digging maintaining of a trench round the infected spots at half the planting distance. ters are reminded that the nema is strongly suspected of being carried alive he husks of seed-nuts taken from infested plantations although the proportion ich infected nuts may actually be small.

On one large estate two men are employed who do no work other than search-for palms attacked by this pest, and should these men, during the course of year's work, find only two trees suffering from red-ring their employer is fied that the money expended in their salaries is justified. The statement is e, that it would not seem as though red-ring is likely to be a destructive pest t. Vincent, but this is made only with two years experience of the nema, and ay be that after a series of very wet years the aspect of the situation will change materially.

Arrowroot Worm (*Calpodes ethlius.*)

The statement is often made that attacks of the arrowroot worm do not to marked degree affect subsequent yields, and an attempt was made during the to test the truth of this statement. For this experiment 4 plots were used uplicate each 60 square feet in area. These were small but they were the ones available for the work. Plots A were control. In plots B, all the es were, on October 10th, stripped from the plants, and this was done to sub-them to treatment similar to that which would happen during a heavy attack aterpillars. In plots C half the leaves were stripped from the plants on ober 6th, and the remainder a week later, creating conditions that might be ected to accrue from an attack of caterpillars of less severity than that sup-dly experienced by the plants in plots B. The leaves from the plants grow-in the D plots, were stripped off in four instalments, at intervals of one week mencing on October 6th, and finishing on October 27th. Creating conditions logous, as far as possible, to four repeated attacks of caterpillars each of a ewhat slight nature. The plots were planted in March 1924 and they were ed in February 19th, 1925.

Results are given in the following table :—

Plot.	Treatment.	Calculated field of rhizones per acre.	Mean.	Increase or decrease on control.
a 1	Control	14,883		
2	„	19,965	17,424	
b 1	All leaves stripped on 6/10/24	19,602		
2	„ „	25,410	22,506	+ 5,182
c 1	Leaves stripped on two occasions on 6/10/24 and 13/10/24	19,965		
2	„ „	17,424	18,695	+ 1,271
d 1	Leaves stripped on four occasions on 6/10/24, 13/10/24, 20/10/24 and 27/10/24	15,609		
2	„ „	14,520	15,165	— 2,359

The stripping of the leaves as in B and C resulted in an increase, decr returns were obtained when the leaves were stripped on four different occas and this decrease was not a large one. The results are interesting and th periment is worthy of repetition on a larger scale.

Experiments for Control of Soft Rot.

The soft rot of bolls (*Phytophthora*) annually causes serious losses to c planters, these losses are very marked during periods of heavy rainfall, or th high humidity. This disease is described by Nowell in his "Diseases of Plants" as follows :—"The first appearance of the disease is shown by a da ing of the colour of the bolls, which proceeds from a green darker than the n to blue black or black. By the time this is completed the boll and its con are more or less soft-rotted and completely spoiled. The fungus appears ex ally on the boll as a white cottony envelope of mycelium or as a white p covering of conidia. No other part of the plant has been seen to be attacked

In these experiments an attempt was made to control the fungus by sp ing the ground of certain plots with Burgundy mixture, the assumption that this disease is carried over by means of resting spores in the soil. W once conditions are such as to be conducive to the rapid growth of this dis the infestation from boll to boll is possibly quite high.

Four plots each consisting of 8 rows 60 feet long and 4 feet apart were for this experiment. There were two plots sprayed and two unsprayed. cotton was planted on July 19 in all the plots, 18 inches apart. In one spr and one unsprayed plot there were 2 plants left to each hole, and in one spr and one unsprayed there was one plant per hole. The first diseased boll picked on November 13th, and picking of cotton commenced on the 20th of same month. The plots were sprayed on October 6th, October 20th, Nove 3rd and November 17th. The rainfall from October 6th to November 30th 18·59 inches, and the periods of heavy rainfall were—

October 16th	1·40	inches
„ 27th and 28th	3·43	„
November 11th	1·72	„
„ 29th and 30th	2·99	„

The results are put forward in the following as yield of seed cotton, nu of diseased bolls and ratio of diseased bolls to seed cotton.

ries.	No. of row.	Treatment.	Yield of seed cotton per row, lb.	Diseased bolls collected per row.	Totals from groups of 8 rows.		Ratio of diseased bolls to seed cotton obtained.
					Seed cotton lb.	Diseased bolls.	
A	1	Sown 18″ apart. 1 plant per hole. Unsprayed.	11 1/16	199			
	2	,,	13 14/16	173			
	3	,,	11 10/16	327			
	4	,,	11 14/16	234			
	5	,,	13 1/16	331			
	6	,,	11 2/16	480			
	7	,,	11 5/16	455			
	8	,,	9 13/16	562	94 6/16	2,761	29·4 diseased bolls to 1 lb.
D	25	18″ apart. 1 plant. Sprayed.	9 4/16	211			
	26	,,	9 5/16	161			
	27	,,	10 6/16	239			
	28	,,	10 3/16	140			
	29	,,	9 5/16	118			
	30	,,	8 8/16	161			
	31	,,	9 4/16	136			
	32	,,	9 8/16	157	75 11/16	1,323	17·6
B	9	Sown 18″ apart. 2 plants per hole. Unsprayed.	13	669			
	10	,,	13 10/16	597			
	11	,,	13 10/16	616			
	12	,,	13 1/16	516			
	13	,,	14 3/16	424			
	14	,,	11 10/16	492			
	15	,,	12 6/16	516			
	16	,,	9 12/16	511	101 1/16	4,341	43·0
C	17	18″ apart. 2 plants. Sprayed.	13 2/16	336			
	18	,,	12 8/16	248			
	19	,,	12 8/16	286			
	20	,,	12 6/16	479			
	21	,,	11 4/16	367			
	22	,,	11 16/16	440			
	23	,,	11 0/16	295			
	24	,,	11	258	85 10/16	2,709	31·9

No deductions of importance can be adduced from the above, but the results re suggestive, and the experiment is worthy of repetition on slightly different nes.

Other Pests.

Cotton.

In June and July there was experienced in the southern part of the island n attack of Bronze Beetle (*Colaspis fastidiosa*). This pest caused some damage that it attacked young cotton plants and cut them down just above ground vel. It is seldom that this insect does material harm, but on this occasion it used some worry to planters in that it was the means of causing difficulty in tting the crop established.

Bush Bugs (*Nezara viridula*) were common on two estates during the onths of July, August, September and October and on one of these did damage wards the end of the period mentioned.

Soft rot (*Phytophthora sp.*) was common in cotton fields during certain onths of the year. In some cases 25% of the bolls on trees were lost on account

of this, it was much more common than, for instance, during the two seaso previous to the one under report. As is well known moist humid conditions a ideal for the growth of this disease, and during 1924, it was not so much t quantity of rain recorded as the manner in which it fell that caused the prevalen of this.

The fungus, *Sclerotium rolfsii*, was common in one or two low lying sit ations in which cotton was grown, and caused the loss in some places, of a lar number of seedlings. The damage done by this pest becomes pronounced in fiel which require weeding. The easiest method of control, or rather of minimisi damage, is to keep clean weeded low lying or damp situations. It is well know of course, that such are often the places where weeds grow most readily, and a in addition often difficult to weed.

West Indian Leaf Mildew (*Ovulariopsis gossypii*) was, as usual, common o all plants during the latter end of the season. It is difficult to say what dama this pest causes.

Leaf Blister Mite (*Eriophyes gossypii*) was prevalent in St. Vincent durin the end of the season. To control this pest in the Southern Grenadines a Clo Season for Sea Island cotton was enforced. The appearance of the pink bol worm in the second mentioned islands has caused a set of conditions which a such as to make it uneconomically sound to grow Marie Galante and Sea Islan in this place.

Black Scale (*Saissetia nigra*) and White Scale (*Hemichionaspis mino* and Cotton Aphis were found during the year. All however, were of mine importance.

Sugar-Cane.

Root disease of sugar-cane (*Marasmius sacchari*) was found on sugar can growing in most parts of the island. This was very pronounced on canes grow ing on thin soils or those of low fertility.

Rind fungus (*Melonconium sacchari*) and Pine apple disease (*Thielaviops paradoxa*) were noticed during the year.

The Moth Borer, (*Diatrea saccharalis*) the Weevil Borer (*Sphenophor sericeus*) and Mealy Bug were also found on sugar-cane.

Cacao.

Thrips (*Heliothrips rubrocinctus*) were as usual moderately common, an Phytophthora rot of pods was often noticed.

Sweet Potatoes.

This crop suffered from no serious pest. Jacobs or Scarabee (*Cryptorhyn chus batatae*) and Red Spider (*Tetranychus telarius*) were at times present.

Coco-nuts.

The Palm Weevil (*Rhynocphorus palmarum*) did some slight damage. Whit Fly (*Aleyrodicus cocois*) and scale insects (*Aspidiotus destructor*) were generall present.

General.

In some localities three separate attacks of Arrowroot Worm (*Calpod ethlius*) were experienced during the year. This pest is often kept in check b an egg parasite and by predaceous birds. Planters as a rule do not regard thi pest as one that is the cause of serious loss, but heavy defoliation of plants mos probably affects yields. Whether it would pay to keep this pest in check b means of insecticides is a debatable point. Experiments on the effect of defoliatio of arrowroot plants on subsequent yields are put forward in another part of thi publication.

Large numbers of the Corn ear-worm (*Laphygma frugiperda*) made their arance in one locality during August. The peculiarity about this was that nsects confined their depredations to grass and weeds and quickly disappeared. Isolated instances of the Black Weevil Borer (*Cosmopolites sordidius*) were d attacking bananas, and scale insects (*Aspidiotus hartii*) were common on s. It is possible that this latter insect is quite unimportant from an economic -point. *Ballovia cistipennis*, was commonly found attacking pods of pigeon , and was responsible for a fair amount of damage. Some time ago there was port that pink bollworm attacked pods of pigeon peas. The insect turned o be the one under discussion. This is cited merely to indicate how rumours, nes of an alarming nature take place. Leaf rust was common on ground when approaching maturity and smut of Maize was occasionally met with.

PLANT AND ANIMAL LEGISLATION ENACTED DURING THE YEAR 1924.

On February 5th there was gazetted an Order in Council declaring the od between the 14th of April, 1924, and 1st of June, 1924, a Close Season Sea Island Cotton in the Southern Grenadines. This was made under Section the Cotton Protection Ordinance 1923. An important Ordinance, No. 6 of , was promulgated on March 7th. This is known as the Cotton Protection nance 1924. This, and the rules made thereunder, were drawn up primarily ntrol cotton stainer and pink bollworm. It provides in the main :—

(*a*) For the appointment of Inspectors.
(*b*) The control of Ginneries.
(*c*) Fumigation of seed.
(*d*) Transport of seed, and fumigation of bags.
(*e*) Disposal of seed, and seed cotton and cotton seed meal.
(*f*) Storage of cotton seed, seed cotton, and cotton seed meal.
(*g*) Destruction of certain trees and shrubs.
(*h*) Control of carbon bisulphide.

This Ordinance repealed the Cotton Protection Ordinance, 1923.

An order similar to that previously discussed dealing with the Close Season otton as pertaining to St. Vincent and the Northern Grenadines was gazetted March 11th. The Close Season in this instance began on the 1st day of l and ended on May 31st. This order was made under Section 22 of the on Protection Ordinance, 1924.

An Order in Council was made and gazetted on April 15th, under the e Diseases Prevention Act, 1869, prohibiting the importation of cattle, sheep her animals and fodder and litter from any port or place in the United dom or the Channel Islands. And, in an Order in Council gazetted May , Jamaica was added to the previously named places. These Orders were with the view of preventing Foot and Mouth disease from entering the y.

LAND SETTLEMENT.

It is extremely difficult to put forward in figures the role that these settle- s play in the agricultural life of the Colony. The growing of no single crop nfined to these settlements and no statistics are available as to the amount of commodity produced on them. Even if such figures were available they d give only an approximate idea of the true value of production, and this is o the fact that a proportion of the crops produced are consumed by the r of an allotment or his family. There are, however, a number of crops h are more or less common to settlements such as sweet potatoes, yams, as, and fruit, but even with these there is a proportion, although perhaps a small one, produced by estates. Again, with such crops as cotton, arrow- and cacao, which may be regarded as estate crops, there is a proportion pro-

duced on land settlements. With these facts before us it will be seen that a figure put forward as indicating the amount of any one commodity produced peasants on the St. Vincent Settlements would probably be misleading.

Even in such a small island as this the conditions on the various land sett ments differ very considerably and crops which thrive on one will often fail another. For instance cotton will, speaking broadly, thrive at Clare Vall Questelles and Richmond Hill, and it will do moderately well in some parts a in some years on the Linley Valley Settlement. In some others it would nothing more than a foolish venture to attempt to grow this crop.

In the early days permanent crops such as cacao, etc., were recommend and this was done with the view that peasants should not depend too much ground provisions. Cacao has not thriven well except in some few localit where trees are sheltered and the soil is deep .In addition, coffee, nutmegs, co nuts and cinnamon were planted. Only a small proportion of the produce these latter mentioned crops, except coco-nuts and to a smaller extent nutme are exported.

Between various holdings, Galba (*Calophyllum Calaba*) and Ange (*Andira inermis*) have been planted. These form wind-breaks and are valua in that the prunings form a useful mulch. The latter mentioned tree is by far t more valuable of the two in that it is leguminous, the former is a soil robber a often land as far as ten feet from its base cannot be profitably cultivated account of this fact. On certain of the settlements allottees live on their la this is desirable, in some cases, however, they do not do so: at times they a forced to this on account of their holdings being situated some distance from water supply.

Many of the settlements are extremely hilly and peasants make conto drains to prevent erosion, even these, however, do not prevent wash in times flood. Sides of banks are kept up by means of Guinea Grass or Khus-Khus gr (*Andropogon muricatus*). At first to the uninitiated, there appears aconsidera waste of land in that a proportion of many holdings are under pasture. T practice, however, is quite sound agriculturally and forms part of a rotation. factor of importance is the liberal use made of peas, they are planted throu cotton, sweet potatoes and other crops, and the burying of the foliage made them helps considerably to maintain fertility.

The size of the crops reaped vary considerably and it may be of interest we consider some of these. With arrowroot the return per acre is some 8— barrels of 220lb. each, and this, at the time of writing, is selling locally at 2·5 per lb., this, however, is high and probably 1·5d. per lb. would be about t average. Tannias yield about 50 bags per acre, and these may be valued between 4/- and 6/- per bag. From cassava a return of some 10 barrels of 220 may be looked for and the value of this is somewhere in the vicinity of 1·5d p lb. Sweet potatoes yield roughly about 50 bags per acre and anything between 3 and 8/- per bag may be obtained for them. These figures are merely approxim tions, but they indicate that most of the crops grown on the settlements are th of a profitable nature.

St. Vincent is fortunate in that it experiences little or no trouble in obtain an outlet for peasant grown produce. Trinidad, Barbados and to a lesser exte Grenada, readily purchase our provisions and stock, of an annual value of sever thousands of pounds.

EXPERIMENT STATION, UNION ISLAND.

Manurial Experiments with Marie Galante Cotton.

The manurial experiments with Marie Galante Cotton were continued duri the year. The same plots as those previously experimented with were again use and the same manures applied. The results obtained will be given in anoth publication.

Cotton Selection.

Figures dealing with the work of cotton selection as carried out with Marie lante cotton will be found in another part of this publication.

Rainfall.

The following gives the monthly rainfall as measured at Union Island during 24; these readings were recorded by the District Officer, Southern Grenadines.

Month.	Rainfall.
January - -	3·19
February - -	·82
March - -	·17
April - -	·36
May - -	2·22
June - -	3·21
July - -	8·54
August - -	3·40
September - -	2·17
October - -	5·73
November - -	5·17
December - -	2·08
Total inches -	37·06

Miscellaneous.

Onion seed was obtained and sent down to Union Island for experimental poses; this was the Bermuda variety which is the only type that can be de- ded on to form bulbs in the West Indies. A small plot of this was grown at Experiment Station, and one or two allottees raised sufficient to demonstrate t this crop can be grown at Union Island.

Various varieties of pigeon peas were grown and distributed to peasants: se were appreciated. In addition plots of sorrel, broom corn, black eye peas, n and Sea Island cotton were also grown.

PROGRESS IN CHIEF INDUSTRIES.

Cotton Industry.

The area under cotton for the 1924-25 season was 4,563 acres. Of this 94 were planted under Sea Island and 1,269 under Marie Galante. Compar- these figures with those for the previous season we find that in 1924–25 there a decrease of 93 acres for Sea Island and an increase of 140 acres in the area ler Marie Galante. There was, therefore, a combined increase of 48 acres dur- the season under report.

Following the procedure adopted in previous years the appended tables are en. They indicate the number of peasant and estate growers of cotton in the ony and the area under this crop for the seasons 1923-24 and 1924-25.

TABLE 1.

1923–24.

			Sea Island. Acres.	R.	P.	Marie Galante. Acres.	R.	P.
1,209	Small Growers, St. Vincent ...		1,048	2	23			
276	,, ,,	Bequia ...	281	2	0			
298	,, ,,	Union Island ...	124	2	18	572	3	36
41	,, ,,	Canouan ...	15	2	16	66	0	0
1	,, ,,	Mayreau ..	5	0	0			
1,825	Peasants ...		1,473	1	27	638	3	36
	Estates, St. Vincent ...		1,754	2	0			
	,, Grenadines ...		160	0	0	490	0	0
	Total ...		3,387	3	27	1,128	3	36

TABLE 2.

1924–25.

			Sea Island. Acres.	R.	P.	Marie Galante. Acres.	R.	P.
1,065	Small Growers, St. Vincent ...		912	0	4			
233	,, ,,	Bequia ...	204	0	22			
274	,, ,,	Union Island ...	52	1	12	618	2	26
38	,, ,,	Canouan ...	23	2	10	50	3	0
1	,, ,,	Battawia ...	5	0	0			
1,611	Peasants ...		1,197	0	8	669	1	26
	Estates, St. Vincent ...		1,898	2	0			
	,, Grenadines ...		199	0	0	600	0	0
	Total ...		3,294	2	8	1,269	1	26

During the early days of the past cotton season it was feared that return would be small. There were several factors responsible for this. In the firs instance moderately large quantities of cotton seed were exported, and it may b said that ordinarily the export of cotton seed or cotton seed meal, except unde special conditions, is not allowed. The pink bollworm of cotton made its appear ance in December 1923, and legislation to control this was almost immediatel brought into existence, and the legislature made it compulsory that all seed, othe than that for planting purposes should be crushed or buried in compost pits be fore a certain date. The Ginneries could not crush all the seed and it was fel that considerable loss would take place if the seed were buried ; it was shippe to a neighbouring island. The amount so disposed of was 475,000 lb. the mea from which, in the ordinary course of events, would have found its way into th land as manure. It was feared that the loss of this might considerably affec yields. Again some difficulty was experienced by planters in readily obtaining good stand of plants. This was due to attacks, on the young plants when i almost the cotyledon stage, of Bronze Beetle (*Colaspis fastidiosa*). In additio to this, when the plants began to flower, it was found that not nearly so many flowers were being formed as were formed in previous years and as these are th potential crop this was regarded in rather a serious light. However, it wa found, as the season progressed, that although fewer flowers were being formed the numbers shed were also fewer, and this subsequently equalised matters.

The amount of Sea Island cotton lint produced during the season under

ssion amounted to 449,295 lb. Of this 10·3% was stained. This works out e rate of 136·5 lb. per acre and the crop which in the early stages promised to yield indifferently, gave excellent returns. This is the third season in ssion that St. Vincent has been fortunate in obtaining satisfactory returns. he 1923-24 crop the return per acre was at the rate of 140 lb., while for -23 161 lb. were obtained. Taking the average return per acre for the ten previous to 1922-23, we find that it works out at only 89 lb. of lint.

Very little damage was done to the first picking of cotton by pink bollworm ; int of fact, the injury done to the crop was practically on a par with that during the season of its appearance *i.e.* 1923-24. Again the control of the n stainer (*Dysdercus*) has been for the past few years eminently successful he damage done by this pest was, except in one locality, almost negligible. It gain been demonstrated that good returns of cotton in St. Vincent depend very great extent on stainer control, and that control was successful has been ly shown during the past few years. Pink bollworm introduced another r which has given cause for anxiety, but the past season seems to demon- e that this pest may cause but little damage to first pickings of cotton ; d pickings were always uncertain in St. Vincent. It is possible that these can, in the future, be controlled as they have been during the past season. they must not be regarded with lightness, and planters, and even other bers of the community, must not forget that if these two pests get out-of- , they would form a combination capable of ruining the cotton industry of Vincent.

The following table gives the area planted in Sea Island cotton in acres, and eight of lint obtained per acre in lb., for the past ten seasons :—

TABLE III.

Crops.	Area planted, acres.	Weight of lint, lb.	Weight of lint per acre, lb.
1915-16	2,622	295,111	78
1916-17	2,404	160,168	66
1917-18	3,458	329,115	95
1918-19	4,588	437,273	95·4
1919-20	5,079	475,650	93
1920-21	6,453	614,508	95
1921-22	2,907	278,744	93
1922-23	3,562	575,640	161·6
1923 24	3,387	473,248	139·7
1924-25	3,294	449,295	136·5

The average return for the past ten years works out at 105·2 lb.

Following the procedure adopted on previous occasions the appended table een compiled which indicates the amount of Sea Island cotton exported for ast ten years :—

TABLE IV.

Years.	Export of lint lb.
1914-15	291,260
1915-16	237,387
1916-17	99,688
1917-18	427,273
1919	484,097
1920	494,871
1921	502,308
1922	338,279
1923	585,143
1924	520,369

According to Treasury returns Sea Island cotton exported was valued £50,218. White Sea Island was valued at 2/- stained at 9d. per lb. In addi 400 lb. of linters valued at £3 were exported.

Of Marie Galante 1,540 lb. of lint and 32,030 lb. of seed cotton exported. This was valued at £592.

Cacao Industry.

As stated in a previous report, St. Vincent cannot be regarded as a plac which this crop will thrive. Much better returns could, however, be obtaine more care were to be given to cacao cultivation generally.

The question whether it is worth while is necessarily one of price and which each planter must find out for himself under his local conditions.

The price obtained for cacao during the early part of the year under rev was decidedly poor, but improved considerably during the latter part of it. majority of this commodity produced in St. Vincent is shipped to intercolo markets, about one third of it finding its way to Canada and the United Kingd In addition there is a large quantity consumed locally. The exports for the decade are given in the following :—

Year.	Weight lb.
1915	236,843
1916	178,744
1917	133,391
1918	207,507
1919	219,545
1920	168,594
1921	139,135
1922	137,349
1923	121,374
1924	130,910

It will be seen that the amount exported during 1924 showed a sl increase over that sent out of the Colony in 1923. According to Customs retu the cacao exported during the year was valued at £1,820. This works out approximately 3·3d. per lb.

Starch Industry.

The position as regards arrowroot was on the whole eminently satisfact during the year and good prices ruled. The St. Vincent Arrowroot Grow Association, as mentioned in the Report on this Department for the year 19 co-operated with the Exhibition Committee in connection with the Exhibi held at Wembley during 1924, at which illustrated literature and samples arrowroot in neat cartons were given away. Each of the latter contained number of recipes indicating how this commodity could be made into delici and dainty dishes. In addition a large firm of grocers,—The International Sto took up its retailing. It is hoped that this propaganda will be the means popularising St. Vincent arrowroot as a food.

The following table gives the exports of arrowroot and cassava for the ten years :—

Year.	Arrowroot lb.	Value £.	Cassava lb.	Value £.
1915	5,290,781	44,689	111,722	508
1916	4,441,242	37,619	182,004	860
1917	4,737,584	40,296	218,390	1,420
1918	5,084,262	95,828	332,227	3,831
1919	2,244,276	42,222	430,415	4,836
1920	2,794,532	52,771	343,309	3,844
1921	2,093,358	21,216	156,888	1,666
1922	3,627,401	26,141	155,521	1,482
1923	2,177,182	31,829	366,085	3,700
1924	2,952,535	51,361	634,631	6,838

The above table is striking in that it indicates the very large increase in the amount of cassava starch exported. It probably constitutes a record. The quantity of arrowroot which was shipped to the United Kingdom was 1,952,830 lb.; the next largest customer was the United States which absorbed 376,843 lb., while 146,544 lb. were shipped to Canada. All of the remainder, except 22,400 lb. which was sent to Holland, was shipped to intercolonial markets.

It will be seen from the above that arrowroot was valued at 4d. per lb. and cassava at 2·5d. per lb.

In addition to the above it might be stated that 13,795 lb. of farine, valued at £100 were exported.

Sugar Industry.

As will be seen in the table below, another bumper year as regards syrup was experienced in 1924. The quantity shipped amounted to 261,127 gallons. This has not been exceeded for many years, except during 1923 when 275,932 gallons were exported.

The exports of sugar and syrup for the past ten years are given below :—

Year.	Sugar lb.	Value. £	Syrup Gallons.	Value. £.	Total Value £.
1915 ..	503,232	3,253	10,079	503	3,756
1916 ..	1,198,314	9,520	33,771	1,475	10,995
1917 ..	1,264,201	11,584	81,114	3,102	14,686
1918 ..	316,640	3,297	79,834	4,796	8,093
1919 ..	250	3	170,482	10,722	10,725
1920 ..	..	..	185,999	27,828	27,828
1921 ..	322,560	3,514	117,157	9,878	13,392
1922 ..	150,080	1,264	134,784	9,862	11,126
1923 ..	145,944	1,863	275,932	18,711	20,574
1924 ..	22,400	280	261,127	15,758	16,038

The practice, adopted in previous reports, of converting sugar exported into terms of syrup is again put forward, it being estimated that 300 gallons of syrup are equivalent to 1 ton of sugar. Equating sugar to syrup on this basis, the export for the past ten years in terms of syrup are as follows :—

Year.	Syrup, gallons.
1915	77,579
1916	193,271
1917	97,914
1918	112,134
1919	170,875
1920	185,999
1921	160,357
1922	154,884
1923	277,877
1924	264,127

The quantity of sugar exported amounted to 10 tons valued at £280, i.e. £28 per ton. The quantity of syrup exported was 261,127 gallons valued at £15,758 or at the rate of 1/1 per gallon.

The majority of the syrup manufactured in St. Vincent is shipped to Canada. During the year under consideration 188,800 gallons were shipped to the latter mentioned country, and 72,295 gallons to the United States.

PROGRESS IN MINOR INDUSTRIES.

Indian Corn (Maize).

The amount of corn exported was considerably below that of the previous year, but quite up to the average. The quantity shipped was 143,862 lb. or 2,766 bushels valued at £752.

The following gives the exports of maize for the years 1915–24 :—

Year.	Exports, bushels.
1915	1,518
1916	1,652
1917	2,855
1918	3,037
1919	1,327
1920	2,428
1921	1,683
1922	581
1923	4,696
1924	2,766

Coco-nuts.

The growing of this crop in St. Vincent is steadily increasing, and will be, if nothing untoward happens, of considerable value to the Colony. During the year some 150 acres were planted, and new areas are annually coming into bearing ; one estate handled approximately 1,000,000 nuts during 1924. The amount of copra sent out of the island for the period under consideration was almost double that exported in 1923, and it can be said that a steady increase may be anticipated. The following table indicates in an unmistakable manner the growth which has taken place since the year 1918 :—

Year.	Quantity.			Value.	
1918	Coco-nuts	..	5,723	22	£211
	Copra	..	7.104 lb.	189	
1919	Coco-nuts	..	7,000	47	£203
	Copra	..	9,319 lb.	156	
1920	Coco-nuts	..	16,418	144	£574
	Copra	..	22,644 lb.	430	
1921	Coco-nuts	..	13,339	82	£1,451
	Copra	..	89,005 lb.	1,353	
1922	Coco-nuts	...	770	£6 4s. 2d.	£2,440 17 0
	Copra	..	222,593 lb.	£2,434 13s. 10d.	
1923	Copra	..	356,626		£2,959
1924	Coco-nuts	..	4,841 lb.	22	£5,452
	Copra	..	645,973 lb.	5,430	

This crop is attaining such a position in this island that a short discussion of it may not be out of place. On the whole the crop is in a healthy condition, although some trees have been planted in situations where neither coco-nuts nor any other tree could thrive. The writer once heard a remark to the effect that a coco-nut plant would thrive in any place where a gru-grue palm (*Acrocomia*) grew. This is not correct, and any person who works on this assumption is heading for disappointment. Coco-nuts must have deep soil of at least moderate fertility for their general well-being. This crop is being steadily extended in many tropical countries, but unlike some others there appears little danger to be apprehended from over production. On the whole the demand keeps steady pace with supply. At present the price of copra depends on its weight and appearance, and although in the future this may change and valuation be placed on oil content, appearance is now a factor of primary importance. St. Vincent has the reputation of producing some commodities of unique quality and the time is opportune for establishing a reputation for its copra. It is an undoubted fact that many of the countries producing very large quantities, export an article of indifferent merit, and this is due to bad preparation. Good copra cannot be obtained from immature nuts ; in the first instance the oil content depends on the stage of development when harvested, and again copra from immature nuts has a tendency to absorb atmospheric moisture after it has been dried, and like copra indifferently dried in the first instance, becomes mouldy and sour. The oil content of the fresh nut is approximately 33%, that of sun-dried copra 55%, and that of artificially dried copra 60·65%.

A large proportion of copra produced in St. Vincent is sun-dried there being only one drying plant in the island. It seems quite possible that in the future peasants and owners of small areas of land under this crop will be desirous of artificially drying their produce. For such people, possibly the best manner to deal with the proposition would be to erect machinery on the co-operative principle. If this is done the question of transport will have to be carefully considered, and a careful computation made of the annual yield of nuts likely to be obtained from a given area. In connection with this latter factor it might be noted that, unlike most other crops, the monthy variations of yield are not great.

Apart from exports, this crop is used locally to a considerable extent. The oil is obtained from the nut by means of heat, and is used for food, as an illuminant, as a medicine for coughs or as a mild purgative. In addition it is used for a substitute for hair oil and also used when mixed with other materials in cases of rheumatism. Other uses are so well known that they need not be mentioned.

Ground-nuts.

The quantity of ground-nuts exported during the period under review amounted to 322,153 lb. or in terms of bushels 6,195, *i.e.*, 1,608 bushels less than the quantity exported in 1923. The value of the ground-nuts sent out of the

island during the year, was, according to Customs returns, £4,438 or app mately 3·3d. per lb.

The following gives the quantities of this commodity exported for ten year

Year.	Exports bushels.
1915	10,386
1916	14,641
1917	14,424
1918	13,489
1919	11,329
1920	12,017
1921	5,584
1922	8,336
1923	8,803
1924	6,195

Peas and Beans.

There was a considerable decrease in the quantity of peas and beans expo when compared with that of the previous season, the amount being 90,70 or 1,744 bushels.

The following gives the exports, with their values, for the past decade:-

Year.	Exports, bushels.	Value £.
1915	3,066	1,017
1916	6,418	2,070
1917	4,551	1,492
1918	3,361	1,666
1919	2,704	1,392
1920	1,581	952
1921	2,637	1,472
1922	2,731	1,640
1923	2,482	1,595
1924	1,744	984

The peas and beans exported were valued at approximately 2·6d. per lb.

Vegetables and Fruit, etc.

Vegetables to the value of £2,544, and fruit to the value of £143 w shipped from the island during 1924. In addition mace weighing 2,597 lb. 14,452 lb. of nutmegs of a combined value amounting to £628 were expor during 1924.

Rum Industry.

There were 15,386 proof gallons of rum manufactured in the island dur the year. This was valued at £2,307 or at the rate of 3/- per gallon.

Oils.

Oil to the value of £943 was exported during the year. This was made of 4,120 gallons of cotton seed oil and 6,672 gallons of whale oil.

AGRICULTURAL INSTRUCTION, EDUCATION AND CO-OPERATIO

The number of Agricultural Credit Societies in the Colony is twenty-o some of which, however, did not function during the year. A report on these included in this publication.

As in previous years Agricultural Officers paid frequent visits to estates and sant holdings throughout the Colony.

Only two leaflets, Further Notes on Pink bollworm, and Notes on Hurricanes, re written by the Agricultural Superintendent during the year.

British Empire Exhibition.

St. Vincent participated in the Wembley Exhibition of 1924. The Court s small but the general opinion was that the exhibits were well arranged and ly represented the major products of the Colony. The colour scheme was e and white, or perhaps silver and blue. The silvery effect was obtained by a eral use of Sea Island cotton. A replica of the Court was erected in St. Vincent ore the exhibits were shipped to England; photographs of this were taken and h the necessary plans sent with the exhibits. This procedure allowed local ple to form some idea of what their Court would look like at Wembley and s of assistance to those who had the work of putting together the exhibits when y arrived at their destination. The exhibits consisted of cotton, *i.e.* seed ton, lint, combed cotton, cotton bolls, botanical specimens, cotton seed, cotton l meal, cotton seed oil and miniature bales of cotton. Arrowroot starch was wn in bottles, boxes and the form of rhizomes, miniature packages for free dis- bution, botanical specimens, and barrels, in miniature, similar to those in which owroot is shipped. Other exhibits consisted of copra, ground-nuts, coco-nuts, ce, nutmegs, syrup, etc. The exhibits were shown in high class specimen jars in boxes made of highly polished mahogany. The appearance of the Court s enhanced by the acquisition of paintings and photographs of various parts of Vincent. During the course of the Exhibition many thousands of cartons of owroot were given away ; these contained recipes for converting this commodity o various forms of palatable food. In addition picture post cards, showing rious views of the Colony were obtainable at the Court. Much has been written this subject and probably to write now about it at length would be to labour point. It should be said, however, that the St. Vincent Court was quite a cess. The collecting and putting together of the exhibits was the work of the ricultural Superintendent, and he would take this opportunity of thanking the ple, especially the St. Vincent ladies, who worked willingly and whole-heartedly make the St. Vincent section of this great Exhibition a success.

Science Teaching.

This work is done by the Science Master attached to the Grammar School.

Details of Staff and Administration.

The sum of £1,651 was voted during the year for the upkeep of the Agri- tural Department.

The following gives details of expenditure :—

	£	s.	d.
Salary, horse and travelling allowance, Agricultural Superintendent	450	0	0
Salaries, Foremen, Botanic and Experiment Stations, Cotton Inspector, Officer in Training and Clerical Assistant, and horse and travelling allowances, Agricultural Instructor and Cotton Inspector ...	489	5	10
Upkeep Botanic and Experiment Stations (labour, tools, manures, etc.)	582	12	4
Destruction of food plants of the Cotton Stainer ...	30	6	6
Salary, horse and travelling allowance, Government Vaccinating Officer	30	0	0
Other charges Government Veterinary Department ...	39	1	0
Special Cotton Investigations	14	18	0
Total	£1,636	3	8

Receipts.

The receipts for sale of plants and produce at the Botanic and Experi Stations amounted to £147 18s. 8d. The total receipts were £189 19s. 6d.

STAFF CHANGES, ETC.

The Officer in Training, Mr. G. M. Lougheed, resigned on May 15th. place was taken by Mr. H. A. Nanton. No other staff changes took during 1924.

Correspondence and Distribution of Information of Agricultural Mat

During the year the number of minute papers dealt with amounted to and the number of letters despatched was 489.

A total of 380 copies of the Annual Report for 1923 was distributed 181 leaflets, etc., were sent out.

Additions to Library.

Apart from publications received from West Indian Departments of Agi ture, the following were received:—

Records, Brooklyn Botanic Gardens; Seasonable Hints, Department of A culture, Ottawa; Kew Bulletin; The Tropical Agriculturist; The Cotton Gaz Annual Report, Department of Agriculture, Mauritius; Review of Applied cology; Journal of Agricultural Research; The Philippine Agricultural Rev Mycological Notes; Experiment Station Record; Bulletin of Imperial Insti Journal of the Board of Agriculture, British Guiana; Review of Applied Ent logy; Bulletin, Department of Agriculture, Mauritius; Extension Notes, P Rico Agricultural Department; Journal of Genetics; Bulletin, Departmer Agriculture, Ceylon; Report, British Cotton Growing Association; Pampl Agricultural Experiment Station Cornell University; Report, Agricultural De ment, Nigeria; The Singapore Gardens Bulletin; Report on the Lands and F Department, Sierra Leone.

METEOROLOGICAL OBSERVATIONS.

The average rainfall at the Botanic Gardens for the past 31 years was 10 inches. Therefore, the rainfall experienced during 1924 was 12·10 inches b the average.

The following gives the rainfall recorded at the Botanic Station and Experiment Station for 1924:—

Month.	Botanic Station.	Experiment Station.
January	7·26	5·75
February	3·60	3·46
March	7·79	1·07
April	1·94	1·12
May	5·08	4·00
June	9·80	9·13
July	18·08	16·50
August	7·33	7·70
September	5·94	5·36
October	11·06	10·28
November	9·96	10·26
December	9·65	10·44
Total	90·49	85·07

At the Botanic Station rain was recorded on 268 days, and the heaviest was recorded on July 28th when 3·86 inches were measured. The numb days on which rain fell at the Experiment Station was 277, the heaviest fall h experienced on July 29th when 3·63 inches were measured.

RT 1.—ANNUAL RAINFALL, BOTANIC GARDENS, ST. VINCENT, 1894–1924.

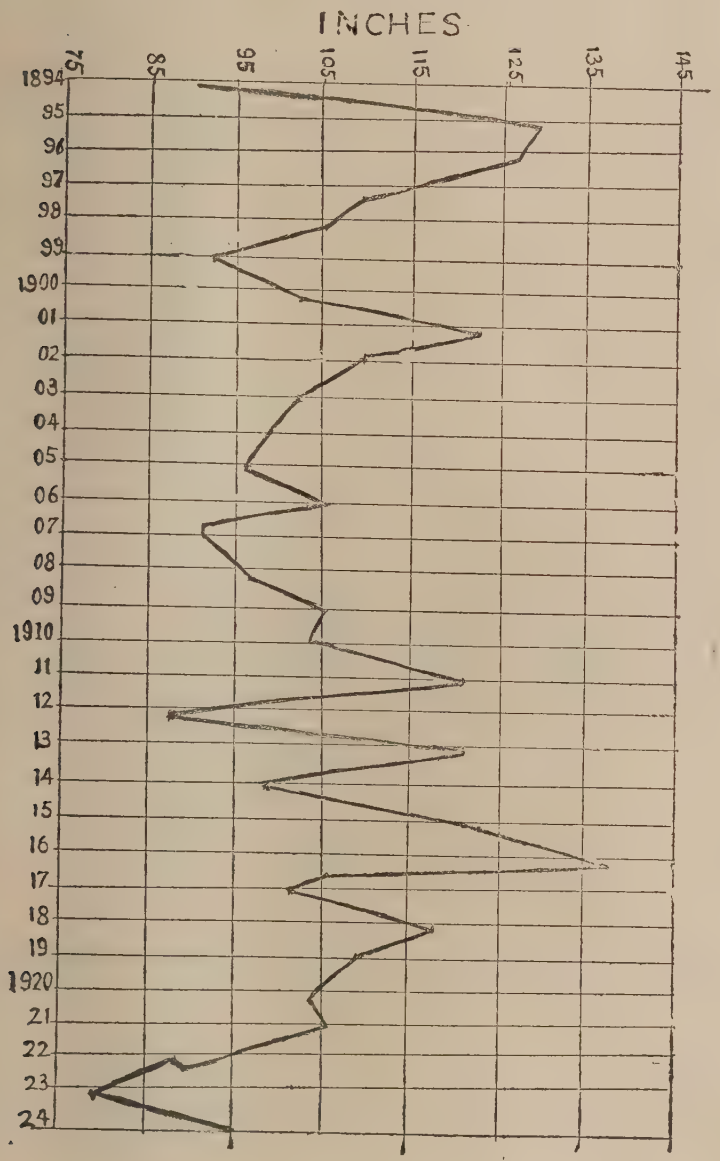
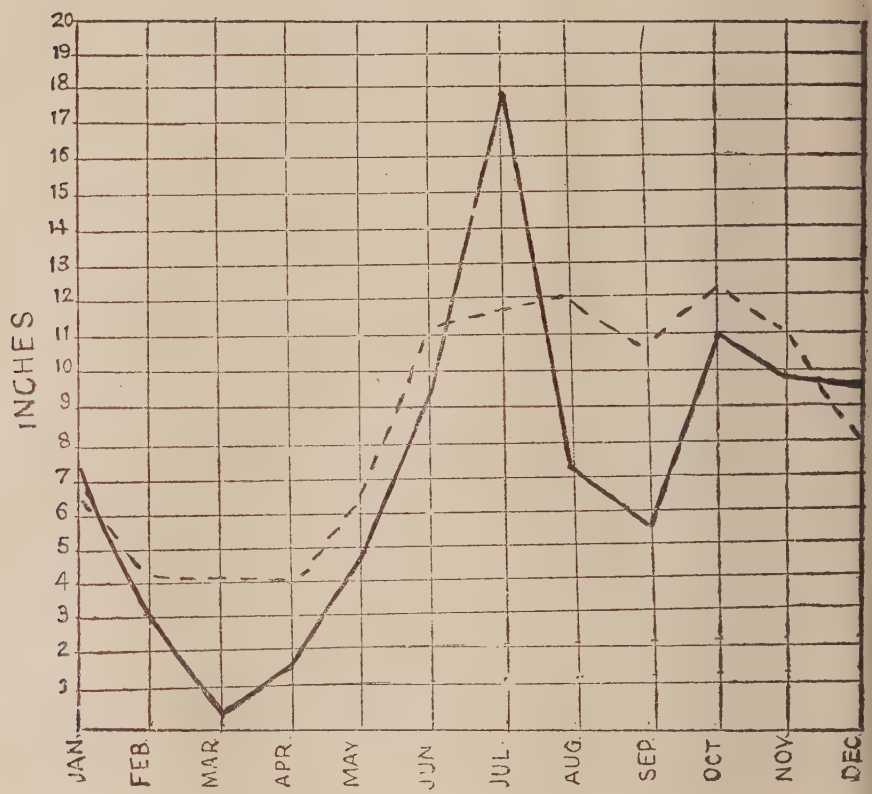


CHART 2.—MONTHLY RAINFALL, BOTANIC GARDENS, ST. VINCENT, 1894–19



Black line represents monthly rainfall, 1924.
Dotted line represents mean monthly rainfall, 1894–1923.

The following gives the mean temperature, average degree humidity, the mean barometric pressure in inches for each month during the year :—

METEOROLOGICAL OBSERVATIONS, EXPERIMENT STATION, FOR 1924.

Month.	Mean Temperature, F.	Average degree of humidity Saturation 100.	Mean barometric pressure in inches.
January ..	78·1	73·8	30·042
February ..	78·2	71·4	30·036
March ..	80·1	67·4	30·013
April ..	80·8	71·9	30·005
May ..	81·1	75·0	30·018
June ..	81·0	74·7	30·032
July ..	80·1	79·9	30·031
August ..	81·4	76·7	30·005
September ..	81·8	75·8	30·006
October ..	80·3	80·9	29·980
November ..	80·4	76·9	29·979
December ..	78·5	74·5	29·828
Mean ..	80·2	74·9	

Atmospheric Pressure.

The reading of the Barometer, corrected for instrumental error, elevation and perature, ranged from 30·175 inches on May 23rd to 29·859 inches on ber 16th.

Official Visitors.

Professor Ballou, Professor Ashby, both attached to the Imperial College of ical Agriculture visited the Gardens during the year. Dr. Leake, Principal, erial College of Tropical Agriculture, paid the Island an official visit on ber 19th ; and left on October 23rd.

Dr. C. L. Withycombe, accompanied by nine post-graduate students, hed to the Imperial College of Tropical Agriculture, visited the Island from mber 28th, 1924 to January 1st, 1925, for the purpose of studying the crops t. Vincent, particularly cotton. The names of the students are as follows :— srs. J. W. Cowland, B.A., J. B. Hutchinson, B.A., W. C. Lester-Smith, B.A., Marsland, B.Sc., (Edin.), N.D.A., N.D.D., J. C. Muir, B.Sc., N.D.A., N.D.D., S. Parsons, B.S.A., (Guelph), J. C. Peat, B.Sc., (Edin.), F. A. Robb, B.Sc., .A., I. A. Sutherland, and Mr. B. G. Montserin (3rd Year Diploma Student).

VETERINARY REPORT.

It was not found necessary to fill the post of Veterinary Surgeon.

The microscopic examination of ears of animals for anthrax continues to be ormed by the Honourable the Colonial Surgeon at the Colonial Hospital.

The vaccination of stock was performed by the Government Vaccinating er. This Officer also holds the appointment of Cotton Inspector.

The total sum of money expended on veterinary work was £69 1s. 0d. made s follows :—

	£	s.	d.
Salary and Travelling Allowance, Government Vaccinating Officer	30	0	0
Burial of Carcasses	39	1	0
Total	£69	1	0

Anthrax.

No cases of anthrax occurred during the year 1924.

Vaccination.

Artificial immunization has been carried out on animals intended for export . Eighty-seven animals, chiefly cattle, were so treated.

The following gives the exports of animals for which no certificates were n :—

Table A.

Class of Animal.	Number.	Value. £
Cattle ...	13	52
Horses ...	1	18
Sheep ...	440	251
Goats ...	1,979	758
Pigs ...	1,175	1,242
Total ...	3,608	2,321

Table B.

Showing kind, number and value of stock for which Veterinary certificat were granted, also the Colonies to which the animals were exported.

Class of Animals.	Barbados.		Trinidad.		Grenada.		St. Lucia.		Total.	
	No.	Value, £	No.	Value. £	No.	Value. £	No.	Value. £	No.	Value £.
Cattle ...	117	813	—	—	1	7	20	101	138	921
Horses ...	9	291	—	—	4	200	—	—	13	491
Asses ...	89	268	19	51	—	—	—	—	108	319
Sheep ...	36	27	—	—	—	—	—	—	36	27
Pigs ...	—	—	—	—	1	1	—	—	1	1
Total ...	251	1,399	19	51	6	208	20	101	296	1,759

Imports.

Twenty-four animals valued at £205 were imported during the year.

Table C.

Class of Animal.	Number.	Value. £
Horses ...	6	113
Goats ...	7	11
Pigs ...	11	61
Total ...	24	205

Table D.

Shewing deaths of animals in districts from natural causes.

District.	Cattle.	Horses.	Mules.	Asses.	Sheep.	Goats.	Pigs.	Total.
Calliaqua ..	16	—	—	1	—	1	—	18
Kingstown ..	27	—	—	4	2	5	9	47
Layou ..	2	—	—	—	—	—	—	2
Mesopotamia ..	5	—	—	3	—	2	1	11
Total ..	50	—	—	8	2	8	10	78

TABLE E.

wing deaths of animals in each month of the year ended December 31st, 1924.

Months.	Cattle.	Horses.	Mules.	Asses.	Sheep.	Goats.	Pigs.	Total.
ary ..	7	—	—	1	—	1	1	10
uary ..	4	—	—	1	—	—	—	5
h ..	3	—	—	1	—	1	—	5
..	1	—	—	1	—	0	1	3
..	4	—	—	—	—	0	2	6
..	4	—	—	1	—	—	—	5
..	3	—	—	1	—	1	1	6
ıst ..	4	—	—	1	—	1	—	6
ember ..	4	—	—	—	1	1	—	6
ber ..	7	—	—	—	—	2	2	11
mber ..	2	—	—	—	—	0	2	4
mber ..	7	—	—	1	1	1	1	11
Total ..	50	—	—	8	2	8	10	78

Report on the Agricultural Credit Societies for the Year 1924.

This is the thirteenth report on these Societies submitted since their inception. icultural Credit Societies have given, and are giving, trouble in various parts he Tropical World. The condition of the St. Vincent Societies is perhaps er than some others, but they are not what they should be. If members ld take advice and follow out instructions their condition would be much er than it now is. Looking at the position from a broad view point we find very considerable sums of money have been loaned. Since the inception of e Societies more than £32,000 have been borrowed from a Bank or other ces, and of this very considerable sum of money a little more than £350 re- ıs uncollected, and at this stage this latter sum cannot be regarded wholly as bad debt". Again, money is loaned to people of the peasant class, possessing number of cases indifferent education, and at times not possessing in a very e sense what may be termed a "money conscience". Taking these facts into ideration and remembering the use that this money is put to, the fact that e Societies have failed to meet their obligations to the extent of £350 should be regarded too pessimistically. The loans obtained by peasants are used nly for the cultivation of land and for the purchase of stock and tools. uld a crop fail which has been planted through the medium of the money owed, or should an animal die which has been purchased by means of a loan amount borrowed may be regarded as a total loss. Such things are bound to ır, and when they do some time elapses before an individual recovers from such. Below is given a short account of the transactions of each Society with the onial Bank and other Institutions from whom the Societies borrowed money. membership of each as appearing in the Records of the Registrar's Office is given.

Georgetown. This Society repaid all loans obtained during 1923. The tot amount of money repaid during the period under review was £390. Of th amount £290 was obtained from the Colonial Bank and £100 from a priva individual. In 1924 the sum of £400 was borrowed. This amount was obtain from the same sources, the Colonial Bank supplying £300. This Society has membership of 89.

Union. In May, 1923, Union Society contracted a loan from the Coloni Bank of £185, and this was repaid in the same month of 1924. In June of th latter mentioned year a loan of £215 was obtained from the same Institution this falls due in 1925. This Society has a membership of 54.

Chateaubelair. The last loan obtained by this Society was in May, 192 and the unpaid balance at the beginning of the year under report was £24. 6. 7. The debt was wiped out in 1924, there being five instalments made. Th Society has 29 members.

Troumaca. This Society obtains loans from a Provident and a Temperan Society, in both cases 6% interest is charged. In 1923 £190 was borrowed whic was promptly repaid in 1924. In 1924 a similar amount was obtained from th same sources. 56 persons belong to this Society.

Lowmans. The loans obtained by this Society in the years 1921 and 192 amounted to £325 and have not been fully repaid. The outstanding sum bein £67. 1. 3, only £18. 13. 0 was repaid during 1924. This Society is bein sued in the Courts of Law for the debt. This Society has a membership of 61

Stubbs. This Society obtained in June 1921 a loan of £115. In 1924 th sum of £16. 10. 10 was paid to the Colonial Bank in seven instalments, an there is a balance of £2. 15. 6½ to be repaid. This Society has a membershi of 91.

Spring Village. In November 1921 this Society obtained a loan from th Colonial Bank of £220. At the beginning of 1924 the amount due wa £109. 7. 9. and during the year only £12. 10. 0 was repaid. Therefore th debt at the end of the year was £96. 17. 9. This Society is being sued for th debt. 53 members belong to this Society.

Buccament. A loan for £85 was contracted by this Society in August 192 and was promptly repaid in August 1924. No further loans have been obtaine 18 persons belong to this Society.

Clare Valley, Questelles. In May, 1923, this Society obtained a loan fro the Colonial Bank of £250. This was promptly repaid in the following yea In June of 1924 a further loan for the same amount was obtained. This Societ has a membership of 46 individuals.

Barrouallie. This Society contracted a loan for £202 from the Coloni Bank in 1921. At the beginning of the year under report the amount unpa was £26. 19. 0. The sum of £11. 6. 8 was paid during 1924, leaving a unpaid balance of £16. 19. 3. The money was paid in four instalments. Th Society has a membership of 47.

Biabou. This Society contracted no loans during the year, and it does n owe any money. 80 persons belong to this Society.

Marriaqua. This Society did not obtain any loan during the year and h no outstanding debts. It has a membership of 74.

Calliaqua. This Society completed repayment of the loan of £265 obtaine in 1922. The amount paid being £47. 9. 9. This Society has a membersh of 56.

Belair, Gomea. The last loan obtained by this Society was in August 1922 vas for £305. The outstanding amount of £52. 8 9 was paid in five ments during the year. 67 individuals belong to this Society.

Orange Grove. In June, 1923, this Society obtained a loan of £230 from Colonial Bank, this was promptly repaid in 1924. In July of the latter ioned year a further loan of £230 was obtained. The membership of this ty is 47.

Redemption. This Society did not obtain any loans during the years 1923 24; it is free from debt. The membership numbers 56.

Union Island. The loan of £460 obtained from the Colonial Bank in De- er, 1921 has not been fully repaid and the Bank has taken legal steps for covery. During the year only £40. 5. 0 was paid, and the amount out- ing is £170. 16. 4. Therefore this Society has only repaid the sum of . 3. 8 during the course of three years. This Society has a membership .

Bequia. The loan of £131 made to the Bequia Society in June, 1922 was d in June, 1924 and a further loan of £96 was made to this Society in the year. There are 29 members of this Society.

Layou, Harmony Hall and Canouan Societies contracted no loans during ear. The membership of each is respectively as follows 46, 43 and 17.

TABLE 1.

STATEMENT OF TRANSACTIONS.

Name of Society.	Date of registration.	Total number of members at December 31, 1924.	Loans in 1924. £	Total loans since registration to December 31, 1924. £.
etown Agric. Credit Society ...	24. 11. 13.	89	400	2,730
„ „ „ ...	24. 11. 13.	54	215	1,830
ubelair „ „ „ ...	24. 11. 13.	29	—	1,250
aca „ „ „ ...	24. 11. 13.	56	190	2,400
ans „ „ „ ...	24. 11. 13.	61	—	1,775
„ „ „ ...	24. 11. 13.	91	—	1,950
Village „ „ „ ..	20. 5. 14.	53	—	1,180
ment „ „ „ ...	20. 5. 14.	18	—	1,215
Valley-Questelles „ ...	8. 9. 14.	46	250	2,285
allie „ „ „ ...	11. 2. 15.	47	—	1,107
„ „ „ ...	31. 1. 16.	80	—	1,489
qua „ „ „ ...	16. 3. 16.	74	—	1,420
ua „ „ „ ...	5. 8. 16.	56	—	1,800
Gomea „ „ „ ...	5. 8. 16.	67	—	2,020
Grove „ „ „ ...	23. 3. 17.	47	230	2,020
ption „ „ „ ...	23. 5. 17.	56	—	1,175
Island „ „ „ ...	23. 5. 17.	90	—	2,308
„ „ „ ...	23. 5. 17.	29	96	918
„ „ „ ...	18. 6. 18.	46	—	945
ny Hall „ „ „ ...	2. 7. 17.	43	—	385
an „ „ „ ...	9. 8. 17.	17	—	80
		1,149	1,381	32,282

TABLE 2.

COMPARATIVE STATEMENT SHOWING HOW LOANS WERE OBTAINED.

Period.	From where obtained.	Amount, £.	Rate of Interest, per cent.	Total, £.
1913–14	Governor in Council	430	6	430
1914–15	" " "	100	6	
	Colonial Bank	905	8	
	Provident Society	40	6	
	Private Individual	25	10	1,070
1915–16	Governor in Council	50	6	
	Colonial Bank	800	8	
	Provident Society	50	6	900
1916–17	Colonial Bank	2,555	8	
	Provident Society	150	6	2,705
1917–18	Colonial Bank	3,320	8	
	Provident Society	150	6	
	Temperance Society	80	6	
	Private Individual	100	6	3,650
1918–19	Colonial Bank	4,201	8	
	Provident Society	160	6	
	Temperance Society	80	6	4,441
1919	Colonial Bank	3,774	8	
	Private Individual	275	6	
	Provident Society	175	6	4,224
1920	Colonial Bank	4,451	7	
	Provident Society	190	6	
	Private Individual	165	6	
	Temperance Society	80	6	4,886
1921	Colonial Bank	4,614	7	
	Provident Society	215	6	
	Temperance Society	80	6	
	Private Individual	100	6	5,009
1922	Colonial Bank	1,682	7	
	Provident Society	115	6	
	Temperance Society	85	6	
	Private Individual	100	8	1,982
1923	Colonial Bank	1,040	7	
	Private Individual	100	8	
	Provident Society	100	6	
	Temperance Society	100	6	1,340
1924	Colonial Bank	1,091	7	
	Provident Society	100	6	
	Temperance Society	90	6	
	Private Individual	100	8	1,381

TABLE 3.

SUMMARY.

The loans repaid during the year amounted to ...	£	1,706	2	11
The total loans obtained since the Societies were registered to December 31, 1924 ...		32,292	0	0
Interest on loans paid during 1924		96	5	9
Total interest paid from date of establishment to December 31, 1924		2,272	13	0
Loans outstanding other than those contracted in 1924		354	10	1½

REPORT ON THE WORKING OF THE GOVERNMENT COTTON GINNERY FOR THE YEAR 1924–25.

The following section was prepared by the Manager of the Government tton Ginnery :—

Ginning Operations.

During the season 1924–25 the quantity of seed cotton received and ginned s 1,129,822 lb., which was 194,578 lb. less than the quantity ginned during previous one. The grade of cotton and yield of lint were as follows :—

Grade of cotton.	Seed Cotton ginned.	Lint obtained.	Percentage of lint to seed cotton.
White Sea Island ...	1,007,422 lb.	273,422 lb.	27·1
Stained „ „ ...	122,400 „	29,970 „	24·4
	1,129,822 lb.	303,392 lb.	

No Marie Galante Cotton was ginned.

Purchase of Cotton on the Co-operative System.

White Sea Island seed cotton was purchased at 6 cents per lb. and stained at cents per lb. The following Table shows the quantities purchased and the ld of lint :—

Grade.	Seed cotton. lb.	Lint obtained. lb.	Percentage of lint to seed cotton.
White Sea Island ...	62,830	17,063	27·1
Stained „ „ ...	9,115	2,320	25·4
	71,945	19,383	

The quantity purchased was very much less than that of the previous year en it was 123,330 lb.

A Bonus of 94% was paid on the cotton purchased during the 1923–24 crop. ere is every indication of a considerably larger Bonus for the 1924–25 crop, there are still fourteen bales of cotton unsold so that it has not been possible declare a Bonus on this up to the time of writing.

Disposal of Cotton Seed.

All the seed obtained from the white cotton was used for oil expressing pur- es at the ginnery, except 28,799 lb. which was delivered for planting purposes. rtain planters took delivery of seed obtained from stained seed cotton amount- to 6,379 lb.; the remainder, 84,439 lb., together with 3,349 lb. received from ther ginnery, was disintegrated for use as manure.

Oil Expressing and Refining.

Oil was expressed from 904,903 lb. of cotton seed, of which 214,47 came from other ginneries. All the crude oil obtained will be refined at the nery. So far, 6,650 gallons of refined oil have been obtained, of which 5 gallons have been sold locally, and the stock on hand, together with that t obtained from a small quantity of crude oil, will be disposed of before next c oil is ready for the market.

In order that the close season prescribed by the Pink Bollworm Regula might be observed, and that the seed in the form of meal could be retained manurial purposes, a second oil expeller was imported and installed du the year.

Purchase of Corn on the Co-operative System.

Shelled Corn was purchased at the rate of $1.25 per 100 lb. and Cob at 88 cents per 100 lb. The quantities purchased were 59,603 lb. and 32,67 respectively. The corn was kiln-dried and stored at the ginnery. It was tho that the quantity purchased could not be disposed of locally before the new was ready, and accordingly 12 tons were exported to Barbados. The balance sold locally—9,495 lb. being in the form of meal.

A Bonus of 66⅔ was paid on the 1923–24 crop on which the same adva as those made on the 1924–25 crop had been paid.

Other Transactions.

In addition to that purchased on the co-operative system, small quantities corn totalling 3,724 lb. were kiln-dried, the shelling of 590 lb. of cob corn done, and 10,654 lb. of cornmeal and stock feed ground.

Grain and other articles fumigated and stored were :—

Corn	4,228 lb.
Peas	961 ,,
Cotton Seed	1,748 ,,
	6,937 ,,

The seed obtained from cotton ginned was fumigated from day to day, also bags in which cotton was received at the ginnery.

A crude soap was manufactured from the sediment obtained from the refining kettle. 3,000 bars were obtained, of which 2,495 have been sold.

The summary of the year's transactions is as follows :—

Seed Cotton ginned	1,129,822 lb.
Cotton Seed expressed	904,903 ,,
,, ,, disintegrated	87,788 ,,
Seed Cotton purchased	71,945 ,,
Corn purchased	85,744 ,,
Corn ground into meal or stock feed ...	20,149 ,,
Corn kiln-dried	84,668 ,,
Cob Corn shelled	33,266 ,,
Cotton Seed treated for planting ...	13,187 ,,
Cotton Seed Oil refined	6,650 galls.
Soap manufactured	3,000 bars
Grain, &c., fumigated and stored ..	6,937 lb.

(612/1925.)